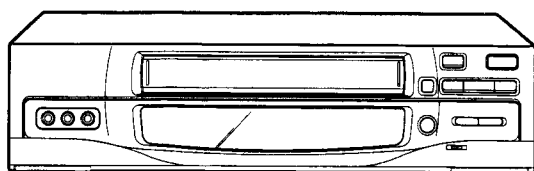


aiwa



HV-FX1500



STEREO VIDEO
CASSETTE RECORDER

• BASIC VIDEO MECHANISM: OVD-4

• TYPE: Z

SPECIFICATIONS

GENERAL

Recording System	2 rotary heads, helical scanning system	Horizontal resolution	240 lines, SP
Video	4 rotary heads	Video S/N	53 dB
Hi-Fi Audio	2 rotary heads	Hi-Fi audio recording system	Depth multiplex recording, 2 rotary heads, helical scanning system
Normal Audio	1 stationary head	Normal audio track	1 track
Erase	1 full track erase	Frequency response	20 Hz-20 KHz (± 6 dB)
Video Signal	PAL colour signal, 625 lines, 50 fields	Dynamic range	More than 75 dB
Recording/Playback time	4 hours max. with E-240 tape, SP	Wow and Flutter	Less than 0.01% Wrms
	8 hours max. with E-240 tape, LP	Audio input level	SCART: -3.8 dB, 50K ohm
Fast forward/rewind time	Less than 300 sec. with E-180 tape		RCA: -8 dB, 50K ohm
Tape Speed	SP: 23.39 mm/sec.	Audio output level	SCART: -3.8 dB, 1K ohm
	LP: 11.69 mm/sec.		RCA: -6 dB, 1K ohm
Tape width	12.65 mm	Audio frequency response	SP: 100 Hz-10 KHz
Usable cassettes	VHS-PAL video cassettes		LP: 100 Hz-8 KHz
Time display	24-hour cycle fluorescent display	Audio S/N	Normal: 42 dB, SP
Timer recording	8 programmes within 1 month		Hi-Fi: More than 65 dB
Channel coverage	VHF-Low: E2-S10 ch	Operating temperature	5°C-40°C
	VHF-High: E5-S41 ch	Power requirements	230V AC, 50 Hz
	UHF21-69 ch	Power consumption	30 watts
RF output	UHF channel between 32 and 40	Dimensions	380(W)x289(D)x92(H) mm
RF output level	73 dB μ , 75 ohm		(15x11 1/2x3 5/8 in.)
Video input level	1.0 Vp-p, 75 ohms, unbalanced	Weight	Approx. 5kg(11 lbs.)
Video output level	1.0 Vp-p, 75 ohms, unbalanced		

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SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a $\triangle$ mark, the designated parts must be used.

3. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

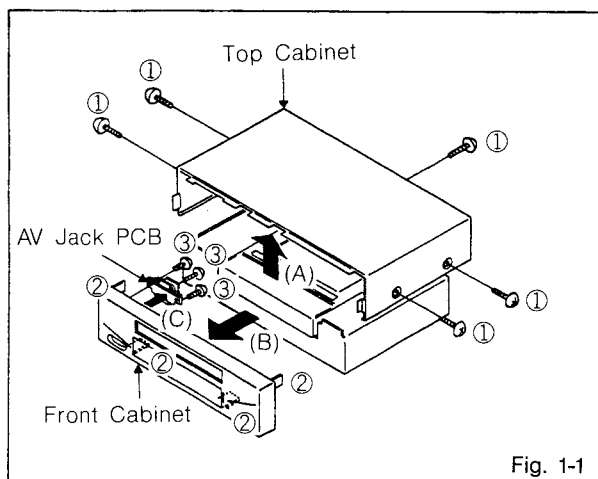
DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

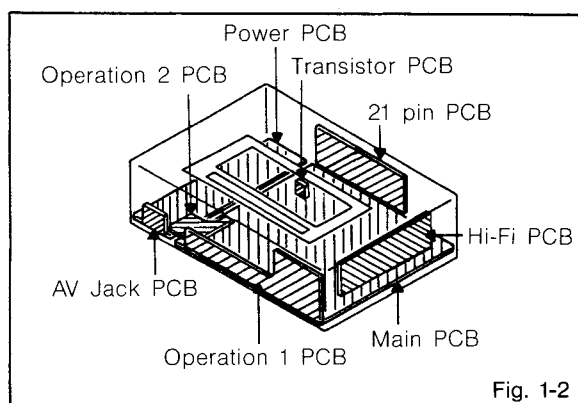
1-1: TOP CABINET, FRONT CABINET AND AV JACK PCB (Refer to Fig. 1-1)

1. Remove the 5 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Unlock the 4 supports ②.
4. Remove the Front Cabinet in the direction of arrow (B).
5. Remove the 3 screws ③.
6. Remove the AV Jack PCB in the direction of arrow (C).

CAUTION: BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

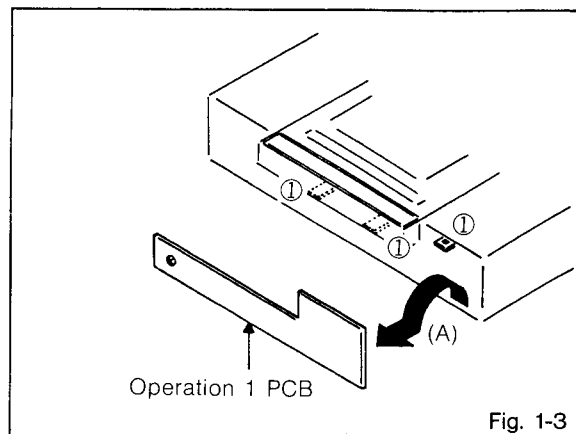


1-2: LOCATION OF P.C. BOARDS (Refer to Fig. 1-2)



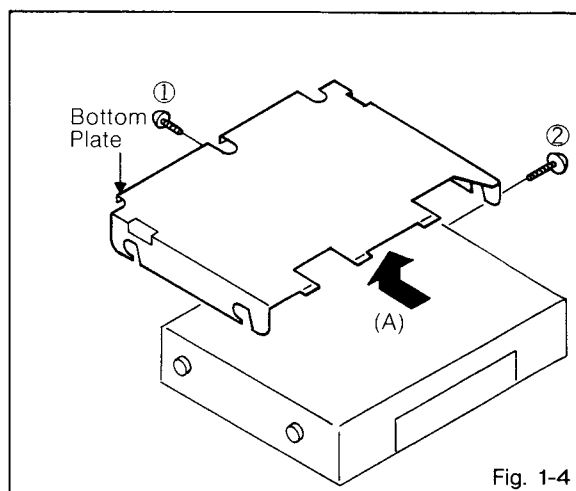
1-3: OPERATION 1 PCB (Refer to Fig. 1-3)

1. Unlock the 3 supports ①.
2. Remove the Operation 1 PCB in the direction of arrow (A).



1-4: BOTTOM PLATE (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the Bottom Plate in the direction of arrow (A).



1-5: MAIN PCB AND DECK CHASSIS (Refer to Fig. 1-5)

1. Remove the screw ①.
2. Remove the 3 screws ②.
3. Remove the Pulley Shaft.
4. Remove the 2 PCB Holder.
5. Unlock the 2 supports ③.
6. Unlock the 2 supports ④.
7. Remove the Main PCB with the Deck Chassis in the direction of arrow (A).

DISASSEMBLY INSTRUCTIONS

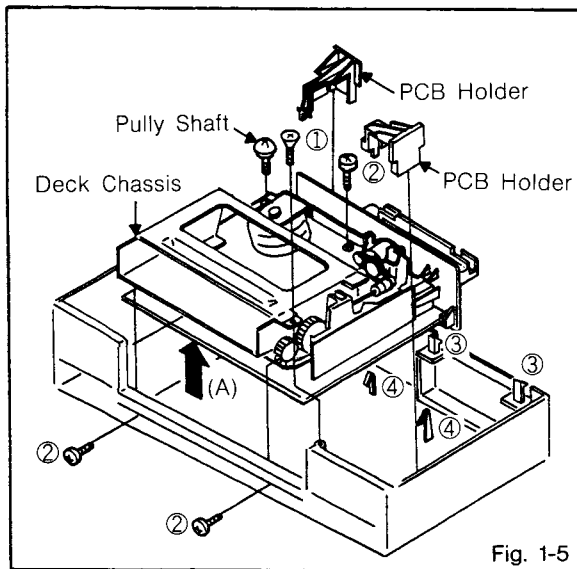


Fig. 1-5

1-6: POWER PCB AND OPERATION 2 PCB (Refer to Fig. 1-6)

1. Remove the Operation 2 PCB in the direction of arrow (A).
2. Remove the screw ①.
3. Unlock the 2 supports ②.
4. Remove the Power PCB in the direction of arrow (B).

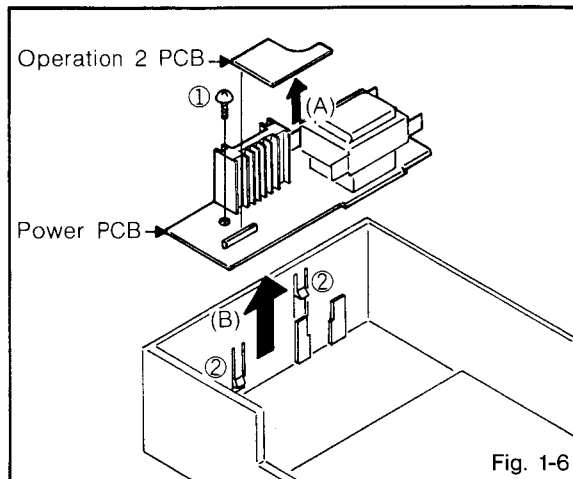


Fig. 1-6

1-7: MAIN PCB, FRONT LOADING UNIT, CHASSIS SECTION AND JACK PLATE (Refer to Fig. 1-7)

1. Remove the 2 screws ①.
2. Remove the Front Loading Belt 2.
3. Remove the Front Loading Unit in the direction of arrow (A).
4. Remove the Chassis Section in the direction of arrow (B).
5. Remove the 6 screws ②.
6. Remove the Jack Plate in the direction of arrow (C).
7. If 21 pin PCB and Hi-Fi PCB needs to be removed from Main PCB, desoldering is necessary.

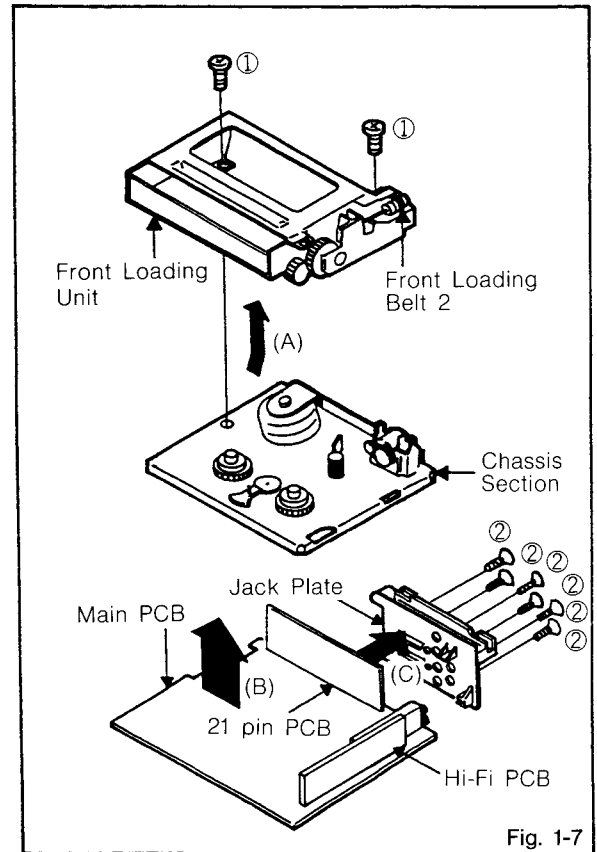


Fig. 1-7

1-8: FLAP (Refer to Fig. 1-8)

1. Open Flap to 90° and flex in direction of arrow (A), to the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

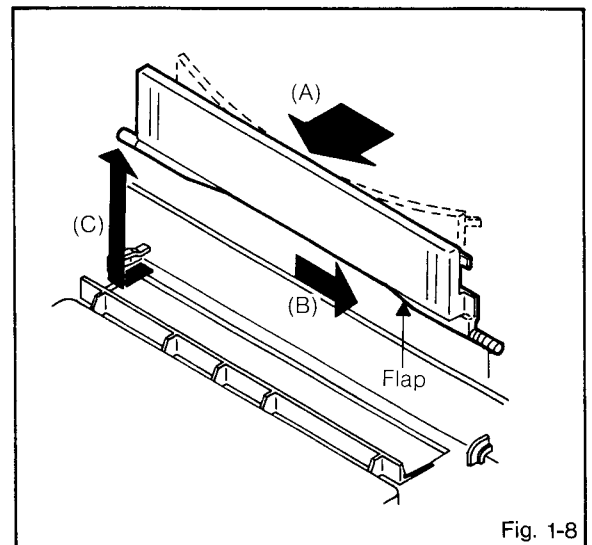


Fig. 1-8

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DECK PARTS

2-1: ACTUATOR SUB BRAKE / IDLER ASS'Y (Refer to Fig. 2-1)

1. Remove the polyslider washer ①.
2. Remove the Idler Ass'y.
3. Remove the TS Brake Spring.
4. Remove the Actuator Sub Brake.

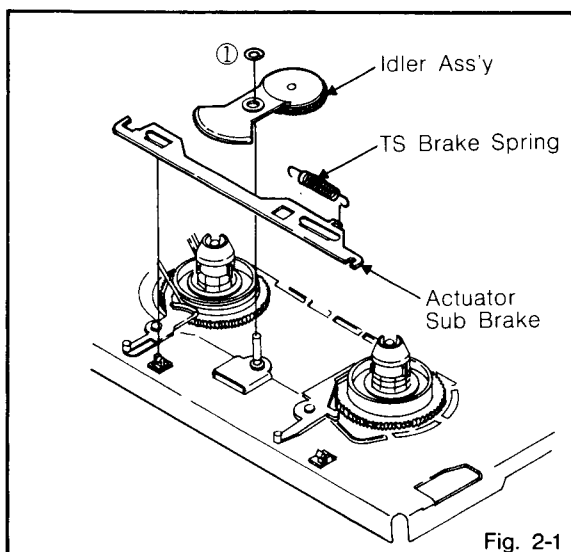


Fig. 2-1

2-2: TENSION BAND (Refer to Fig. 2-2)

1. Remove the Actuator Sub Brake.
2. Remove the SS Brake Spring, then remove the SS Brake Arm.
3. Remove the screw ①.
4. Move the SB Brake Arm for movable range. Remove the Tension Band Ass'y from the Tension Arm Ass'y.

NOTES

1. Install the Tension Band Ass'y without twisting it.
2. Adjust the placement of the Tension Post. (Refer to item 1-2 of MECHANICAL ADJUSTMENTS)
3. Adjust and confirm the back tension during playback. (Refer to item 1-3 of MECHANICAL ADJUSTMENTS)

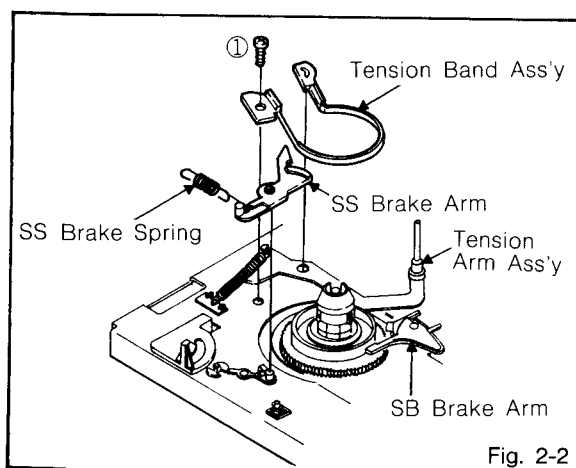


Fig. 2-2

2-3: REEL DISK (Refer to Fig. 2-3)

(Reel Disk S Ass'y)

1. Remove the Actuator Sub Brake.
2. Remove the washer ④, then remove the SB Brake Arm.
3. Remove the SS Brake Spring, then remove the SS Brake Arm.
4. Remove the Tension Band ass'y from the Tension Arm Ass'y.
5. Remove the polyslider washer ①.
6. Pull the Reel Disk S Ass'y upward and replace it.

NOTE

When you replace the SB Brake Arm, use the new washer ④ of the SB Brake Arm.

(Reel Disk T Ass'y)

1. Remove the TS Brake Spring.
2. Remove the Actuator Sub Brake.
3. Move the TS Brake Ass'y in the direction of arrow.
4. Remove the Brake TB 2 Ass'y.
5. Remove the polyslider washer ②.
6. Pull the Reel Disk T Ass'y upward and replace it.

NOTES

1. The height adjustment washers ③ are sometimes attached to the back of the Reel Disk.
2. Clean the Reel Disk Shaft and put in height adjusting washers ③.
3. Be careful not to damage the Tension Band Ass'y at the time of removal and installation.
4. Be careful not to scratch the Reel Disk Shaft with the polyslider washer or the tool at the time of removal and installation.
5. After oiling the Reel Disk Shaft, install the new Reel Disk S Ass'y and Reel Disk T Ass'y again.
6. After installation, adjust the height of the Reel Disk. (Refer to item 1-1 of MECHANICAL ADJUSTMENTS)
7. After installation, adjust and confirm the tension post position. (Refer to item 1-2 of MECHANICAL ADJUSTMENTS)

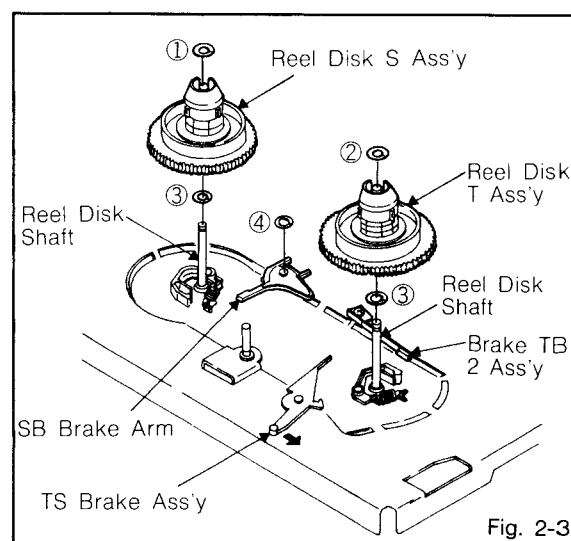


Fig. 2-3

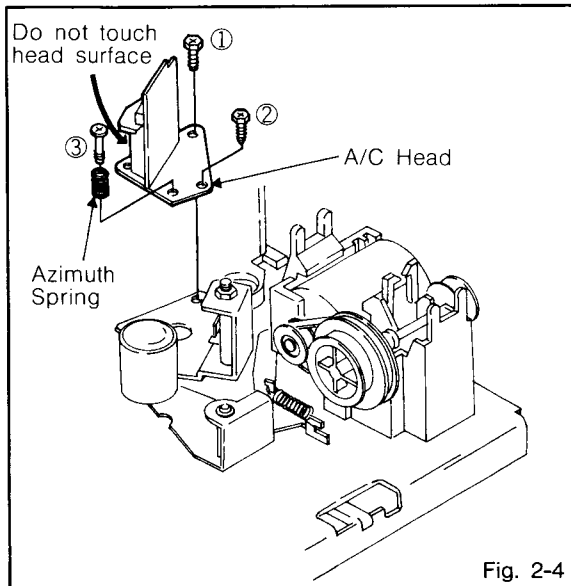
DISASSEMBLY INSTRUCTIONS

2-4: A/C HEAD (Refer to Fig. 2-4)

1. Disconnect the 2 connectors (2 pins and 7 pins) on the A/C Head PCB.
2. Remove the screws ①, ② and ③.

NOTES

1. Do not touch the heads by any means when replacing the A/C head.
2. After replacement, confirm the following adjustments.
 - a. MECHANICAL ADJUSTMENTS: ITEM 2-2
 - b. MECHANICAL ADJUSTMENTS: ITEM 2-3

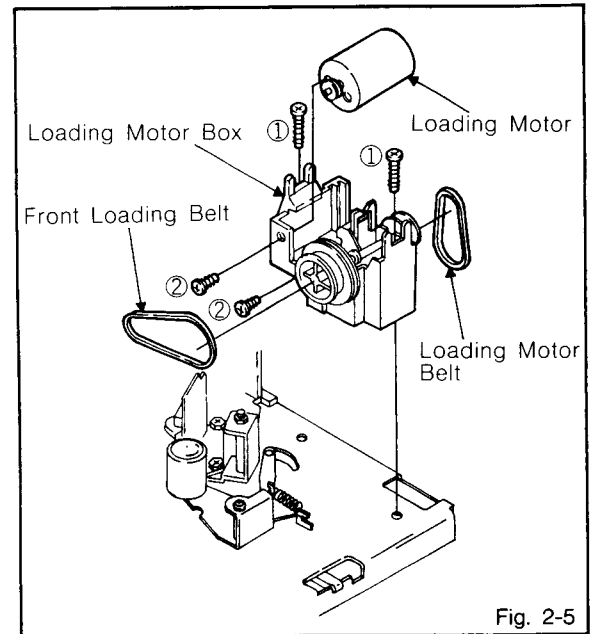


2-5: LOADING MOTOR (Refer to Fig. 2-5)

1. Remove the lead wire in the hook of the Loading Motor Box.
2. Remove the Loading Motor Belt.
3. Remove the 2 screws ①, then remove the Loading Motor Box.
4. Remove the Front Loading Belt.
5. Remove the 2 screws ②, then lift the Loading Motor upward.
6. Remove the 2 wires soldered to the Loading Motor.

NOTES

1. Clean the pulley when replacing Front Loading Belt and Loading Motor Belt.
2. Avoid getting grease on the Loading Motor Belt and Front Loading Belt.

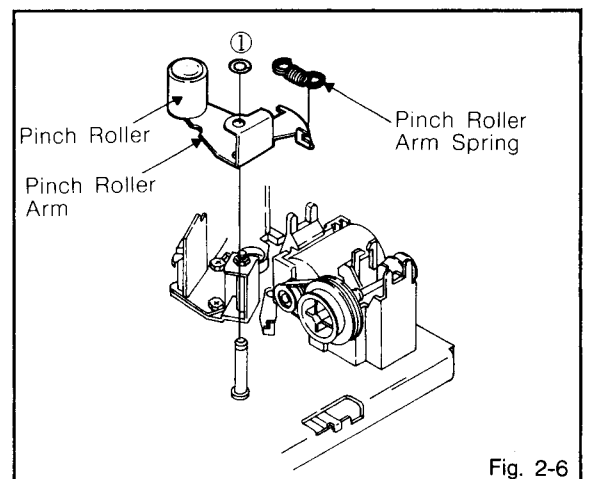


2-6: PINCH ROLLER ARM (Refer to Fig. 2-6)

1. Remove the Pinch Roller Arm Spring.
2. Remove the polyslider washer ①.
3. Remove the Pinch Roller Arm.

NOTE

Do not touch the Pinch Roller. (Use gloves.)



DISASSEMBLY INSTRUCTIONS

2-7: CYLINDER UNIT (Refer to Fig. 2-7)

1. Disconnect the connector ① from the Deck Relay PCB.
2. Disconnect the connector ②.
3. Remove the 3 screws ③, then remove the Cylinder Unit from the Main Chassis.

NOTES

1. Do not touch the surface of the Cylinder Head.
2. After replacement, confirm the following adjustments.
 - a. MECHANICAL ADJUSTMENTS : ITEM 2-1
 - b. ELECTRICAL ADJUSTMENTS : ITEM 3-1

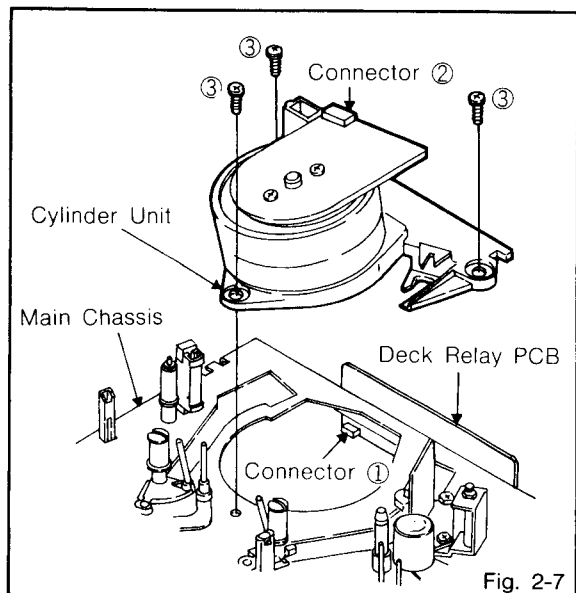


Fig. 2-7

2-8: DECK PCB (Refer to Fig. 2-8)

1. Remove the connector (9 pins) on the Capstan DD Unit.
2. Remove the 2 solder traces ④ and remove the 2 screws ①.
3. Remove the Deck PCB.

NOTES

1. When installing the Deck PCB, be sure to set the Rotary Switch to the EJECT position. The EJECT position is the point where the **Ⓑ** tooth is aligned to **Ⓒ**.
2. Avoid getting grease on the Reel Belt.
3. After installation, be sure to resolder traces **Ⓐ**.

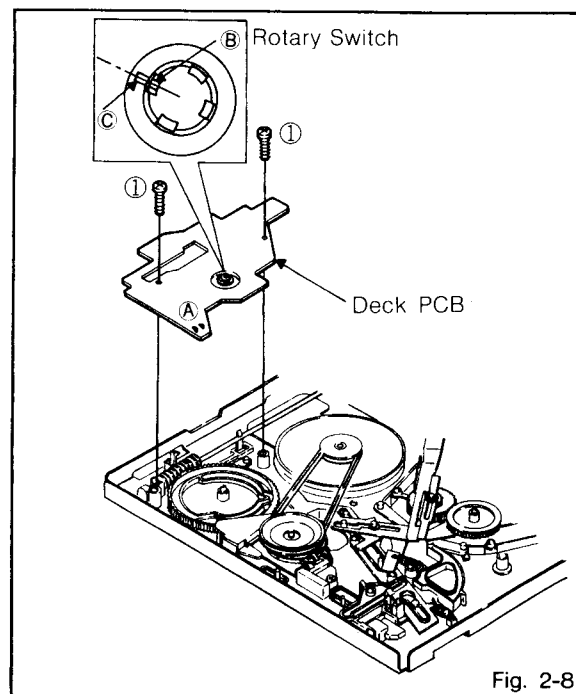


Fig. 2-8

2-9: CAPSTAN DD UNIT (Refer to Fig. 2-9-A, B)

1. Remove the Loading Motor Belt.
2. Remove the screw ①, then remove the Bracket Worm 3.
3. Remove the Worm. (Refer to Fig. 2-9-B)
4. Remove the 3 screws ①. (Refer to Fig. 2-9-A)
5. Remove the Capstan DD Unit.

NOTES

1. Do not bend the Limiter Post.
2. Use the specified screw to hold the Capstan DD Unit.
3. Install in the position where the Capstan DD Unit PCB gets up to the (A) position.

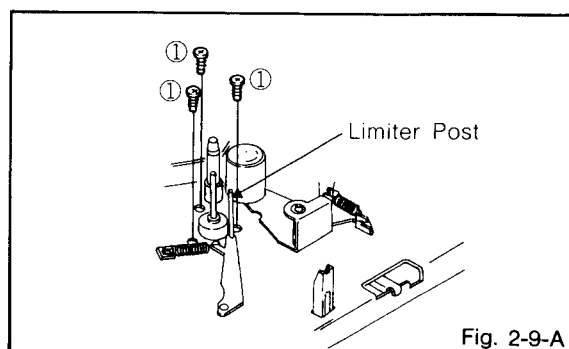
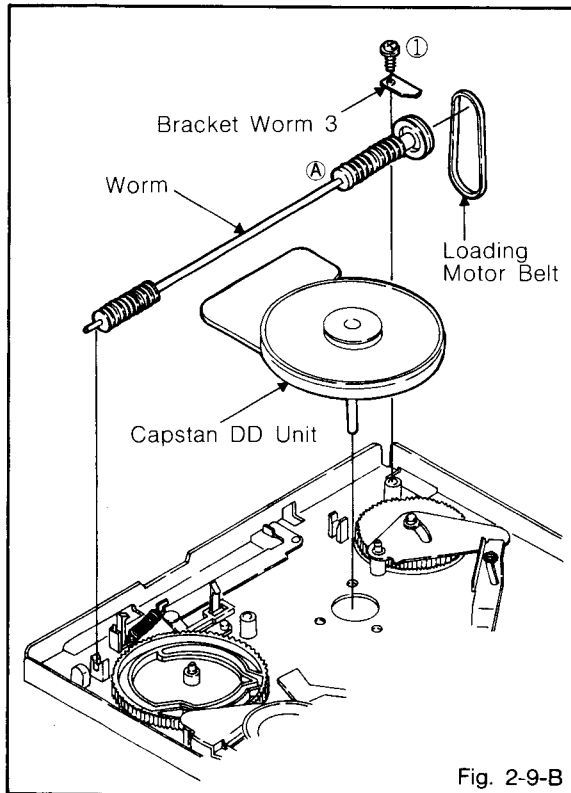


Fig. 2-9-A

DISASSEMBLY INSTRUCTIONS

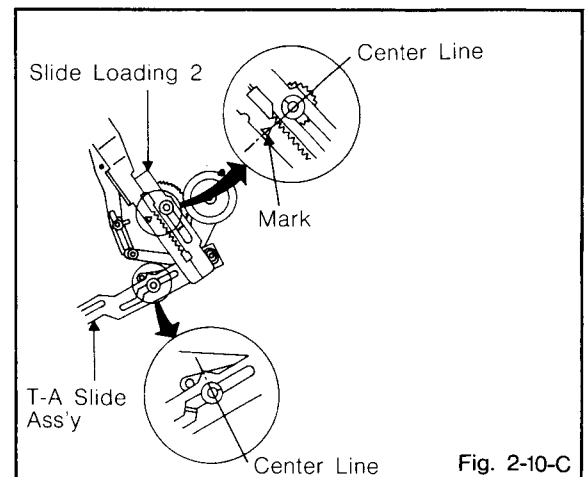
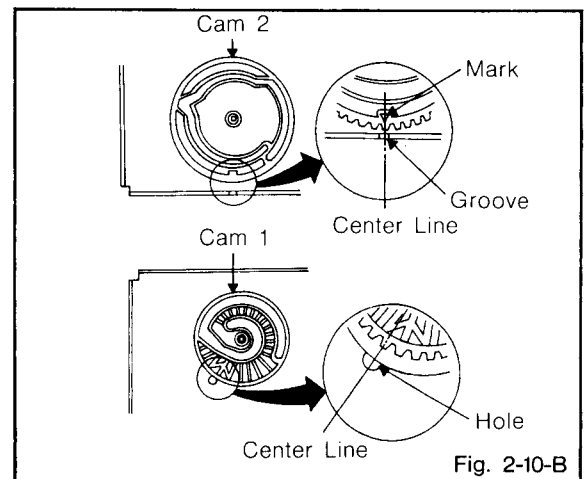
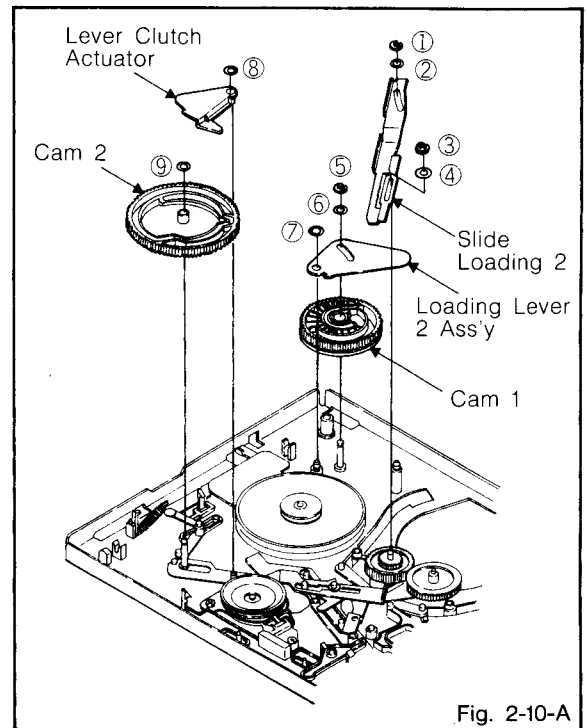


2-10: CAM 1 / CAM 2 (Refer to Fig. 2-10-A, B, C)

1. Remove the E-ring ①, then remove the washer ②.
2. Remove the E-ring ③, then remove the washer ④.
3. Remove the Slide Loading 2.
4. Remove the E-ring ⑤, then remove the washer ⑥.
5. Remove the polyslider washer ⑦.
6. Remove the Loading Lever 2 Ass'y, then remove the Cam 1.
7. Remove the polyslider washer ⑧, then remove the Lever Clutch Actuator.
8. Remove the polyslider washer ⑨, then remove the Cam 2.

NOTE

Be sure to install in the EJECT position.
(Refer to Fig. 2-10-B, C)



DISASSEMBLY INSTRUCTIONS

2-11: LINK GEAR (R) / CLUTCH GEAR (Refer to Fig. 2-11)

1. Remove the 2 screws on the Side Bracket R2 Ass'y and remove the Side Bracket. (Refer to FRONT LOADING EXPLODED VIEW)
2. Remove the Link Gear (R) and Clutch Gear.

NOTES

1. When installing the Link Gear Spring R2 on the Link Gear (R), proceed in order ①, ②, ③ as shown in Fig. 2-11.
2. When installing the Link Gear (R), match the position of the Link Gear (R) so that the line over the two ribs on the Synchro Gear goes through the marking hole on the Link Gear (R).

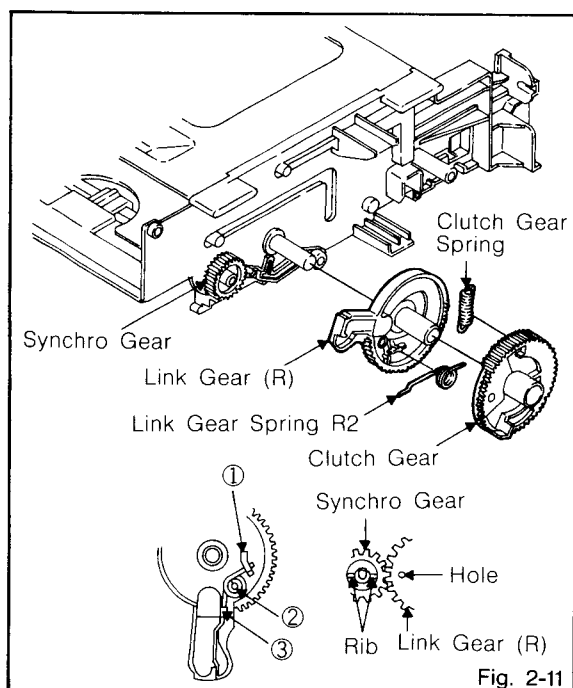


Fig. 2-11

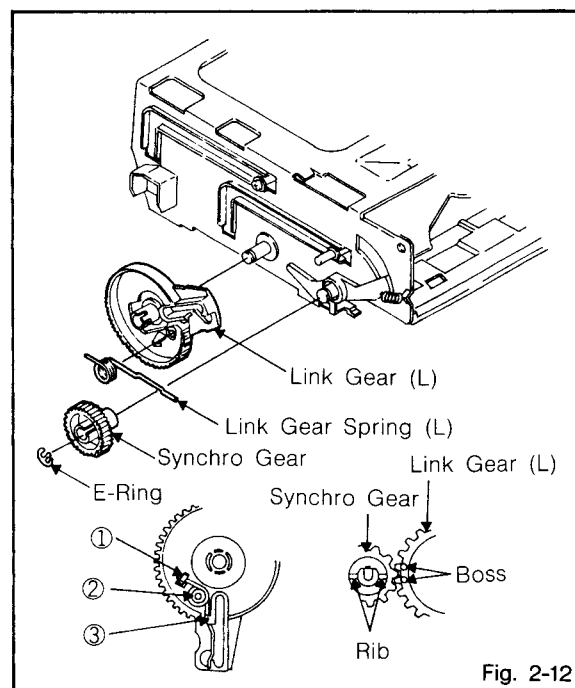


Fig. 2-12

2-12: LINK GEAR (L) (Refer to Fig. 2-12)

1. Remove the E-RING.
2. Remove the Synchro Gear.
3. Remove the Link Gear (L).

NOTES

1. When installing the Link Gear Spring (L) on the Link Gear (L), proceed in order ①, ②, ③ as shown in Fig. 2-12.
2. When installing the Synchro Gear, match the position of the Synchro Gear so that the line over the two ribs on the Synchro Gear goes over the two ribs on the Link Gear (L).

KEY TO ABBREVIATIONS

A	AC	: Alternating Current	M	M	: Motor
	A/C	: Audio/Control		MAX	: Maximum
	ACC	: Automatic Color Control		MIN	: Minimum
	AE	: Audio Erase		MIX	: Mixer, Mixing
	AFC	: Automatic Frequency Control		MM	: Monostable Multivibrator
	AFT	: Automatic Fine Tuning		MOD	: Modulator, Modulation
	AFT DET	: Automatic Fine Tuning Detect		MPX	: Multiplexer, Multiplex
	AGC	: Automatic Gain Control		MS SW	: Mech State Switch
	AMP	: Amplifier	N	NC	: Non Connection
	ANT	: Antenna		NR	: Noise Reduction
	A.PB	: Audio Playback	O	OSC	: Oscillator
	APC	: Automatic Phase Control		OPE	: Operation
	ASS'Y	: Assembly		OR EQ	: Or Equivalent
	AT	: All Time	P	PB	: Playback
	ATT	: Attenuator		PB CTL	: Playback Control
	AUTO	: Automatic		PB-C	: Playback-Chrominance
	A/V	: Audio/Video		PB-Y	: Playback-Luminance
B	BGP	: Burst Gate Pulse		PCB	: Printed Circuit Board
	BOT	: Beginning of Tape		P.CON	: Power Control
	BPF	: Bandpass Filter		PD	: Phase Detector
	BRAKE SOL	: Brake Solenoid		PG	: Pulse Generator
	BUFF	: Buffer		p-p	: Peak-to-Peak
	B/W	: Black and White		PWM	: Pulse Width Modulation
C	C	: Capacitance, Collector		PWM TV	: Pulse Width Modulated Tuning Voltage
	CASE	: Cassette	R	R	: Right
	CAP	: Capstan		REC	: Recording
	CARR	: Carrier		REC-C	: Recording-Chrominance
	CCD	: Charged Coupled Device		REC-Y	: Recording-Luminance
	CE	: Chip Enable		REEL BRK	: Reel Brake
	CH	: Channel		REEL S	: Reel Sensor
	CLK	: Clock		REF	: Reference
	CLOCK(SY-SE)	: Clock(Syscon to Servo)		REG	: Regulated, Regulator
	COMB	: Combination, Comb Filter		REW	: Rewind
	CONV	: Converter		REV	: Reverse
	CPM	: Capstan Motor		RF	: Radio Frequency
	CTL	: Control		RMC	: Remote Control
	CYL	: Cylinder		RVS	: Reverse
	CYL-M	: Cylinder-Motor	S	RY	: Relay
	CYL SENS	: Cylinder Sensor		S.CLK	: Serial Clock
D	DATA(SY-SE)	: Data(Syscon to Servo)		S.COM	: Sensor Common
	dB	: Decibel		S.DATE	: Serial Date
	DC	: Direct Current		SEG	: Segment
	DD Unit	: Direct Drive Motor Unit		SEL	: Select, Selector
	DEMOD	: Demodulator		SENS	: Sensor
	DET	: Detector		SER	: Search Mode
	DEV	: Deviation		SI	: Serial Input
E	E	: Emitter		SIF	: Sound Intermediate Frequency
	EE	: Electric to Electric		SO	: Serial Output
	EF	: Emitter Follower		SOL	: Solenoid
	EMPH	: Emphasis		SP	: Standard Play
	ENC	: Encoder		STB	: Serial Strobe
	ENV	: Envelope		SW	: Switch
	EOT	: End of Tape		SYNC	: Synchronization
	EQ	: Equalizer		SYNC SEP	: Sync Separator, Separation
	EXT	: External	T	TR	: Transistor
F	F	: Fuse		TRAC	: Tracking
	FBC	: Feed Back Clamp		TRIC PB	: Trick Playback
	FE	: Full Erase		TP	: Test Point
	FF	: Fast Forward, Flipflop	U	UNREG	: Unregulated
	FG	: Frequency Generator	V	V	: Volt
	FL SW	: Front Loading Switch		VCO	: Voltage Controlled Oscillator
	FM	: Frequency Modulation		VIF	: Video Intermediate Frequency
	FSC	: Frequency Sub Carrier		VP	: Vertical Pulse, Voltage Display
	FWD	: Forward		V.PB	: Video Playback
G	GEN	: Generator		VR	: Variable Resistor
	GND	: Ground		V.REC	: Video Recording
H	H	: High		VSF	: Visual Search Fast Forward
	H.P.F	: High Pass Filter		VSR	: Visual Search Rewind
	H.SW	: Head Switch		VSS	: Voltage Super Source
	Hz	: Hertz		V-SYNC	: Vertical-Synchronization
I	IC	: Integrated Circuit		VT	: Voltage Tuning
	IF	: Intermediate Frequency	X	X'TAL	: Crystal
	IND	: Indicator	Y	Y	: Luminance
	INT	: Interrupt		Y/C	: Luminance/Chrominance
	INV	: Inverter			
K	KIL	: Killer			
L	L	: Left			
	LED	: Light Emitting Diode			
	LIMIT AMP	: Limiter Amplifier			
	LM, LDM	: Loading Motor			
	LOAD	: Loading			
	LP	: Long Play			
	L.P.F	: Low Pass Filter			
	LUMI	: Luminance			

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Parts Name \ Time	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head	■	■	■	■	■	
Reel Belt		■		●		Clean the rubber, and parts which the rubber touches.
Front Loading Belt		■		●		
Pinch Roller	■	■	■	■	■●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band Ass'y					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■●	■	■●	■●	Clean the head

● : Replace, ■ : Clean

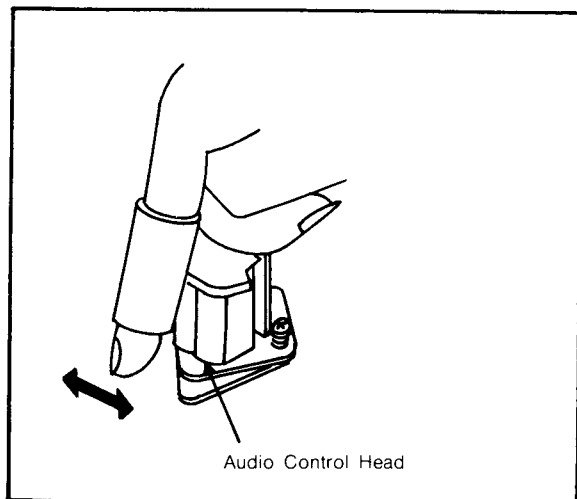
CLEANING

NOTE

- After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

- Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. (Refer to the figure below)



2. TAPE RUNNING SYSTEM

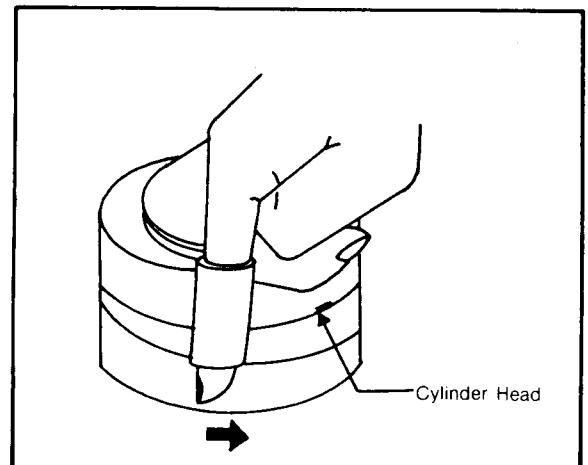
- When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

- Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). (Refer to the figure below)

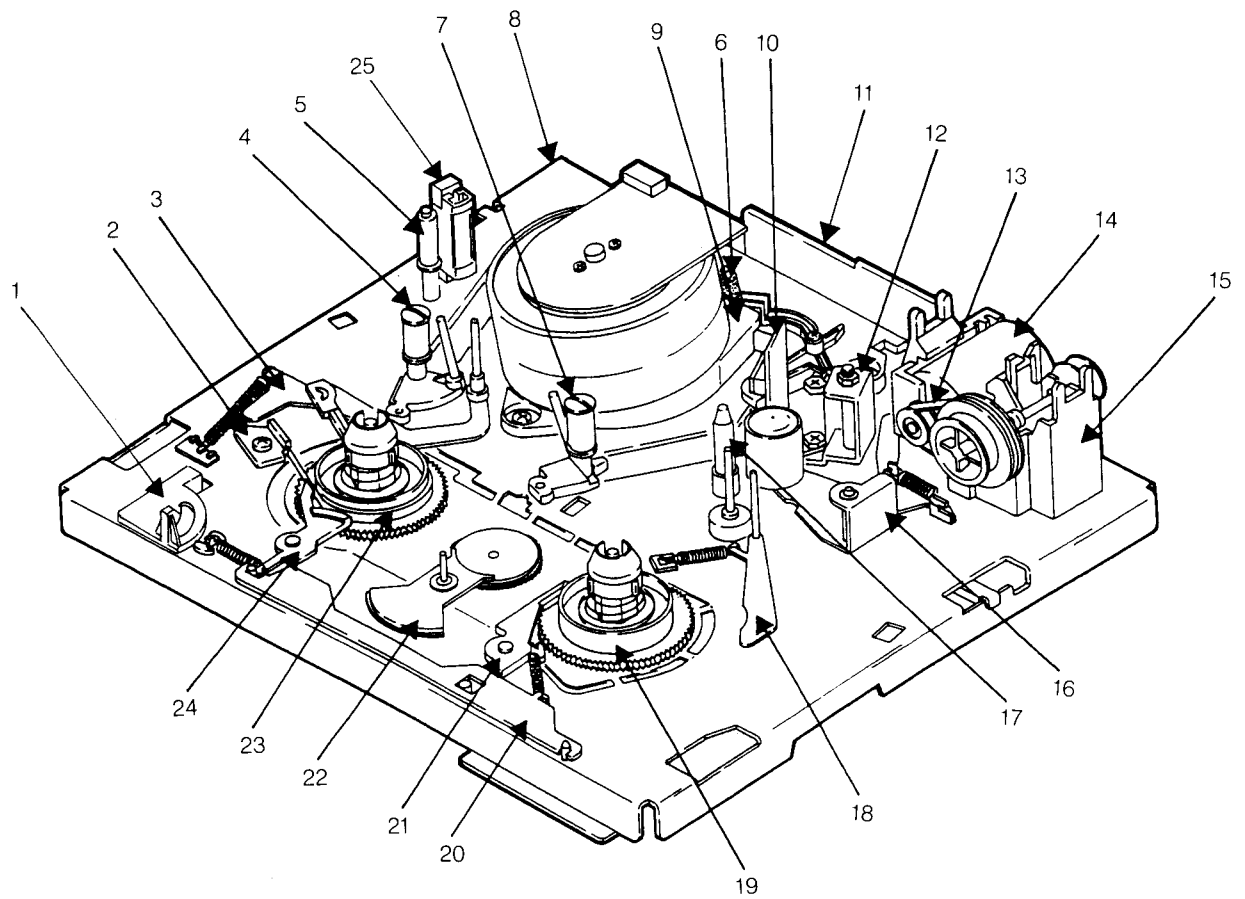
NOTE

Do not exert force against the cylinder head. Do not move the chamois up or down since this can damage the head. Always use a piece of chamois for cleaning.



DECK PART LOCATIONS

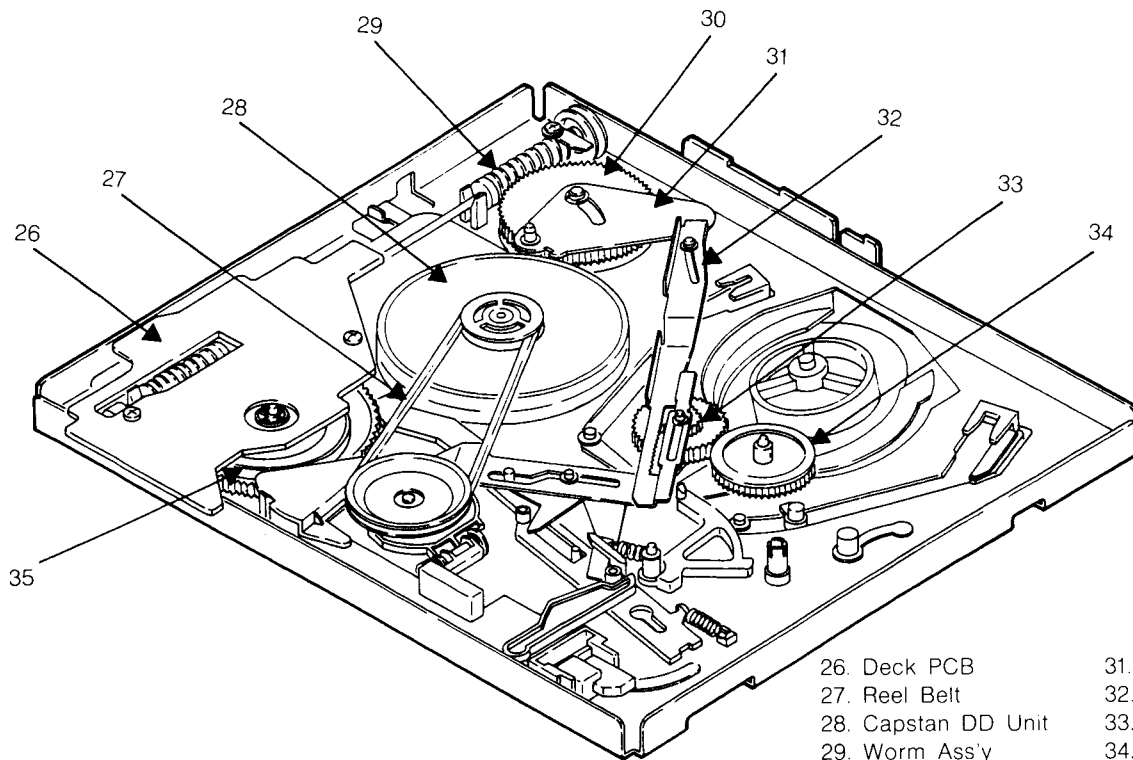
(TOP VIEW)



- | | |
|-----------------------|-----------------------------|
| 1. REC SW Lever | 13. Front Loading Belt |
| 2. Tension Band Ass'y | 14. Loading Motor |
| 3. Tension Arm Ass'y | 15. Loading Motor Box Ass'y |
| 4. Guide Roller Ass'y | 16. Pinch Roller Arm Ass'y |
| 5. P1 Post | 17. P4 Post |
| 6. Auto Head Cleaner | 18. Limiter Post Arm Ass'y |
| 7. Guide Roller Ass'y | 19. Reel Disk T Ass'y |
| 8. Main Chassis | 20. Actuator Sub Brake |
| 9. Cylinder Unit | 21. TS Brake 2 Ass'y |
| 10. A/C Head | 22. Idler Ass'y |
| 11. Deck Relay PCB | 23. Reel Disk S Ass'y |
| 12. A/C Head Base | 24. SS Brake Arm |
| | 25. Full Erase Head |

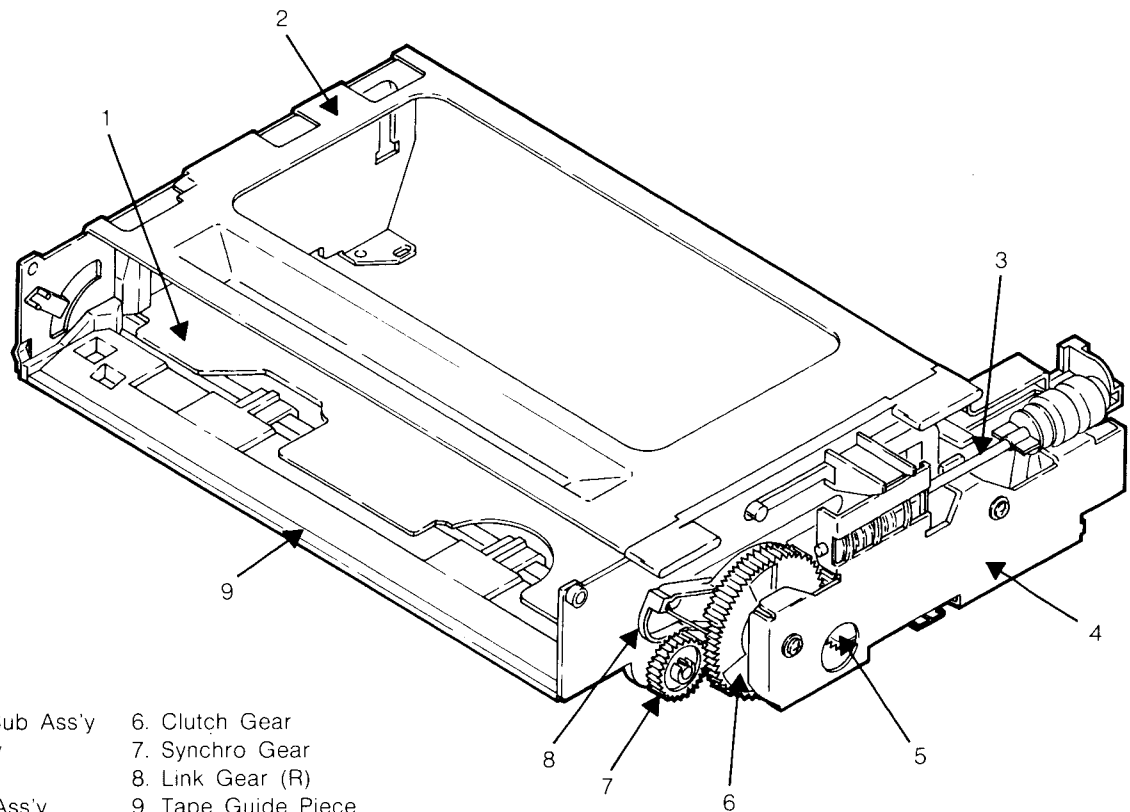
DECK PART LOCATIONS

(BOTTOM VIEW)



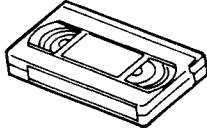
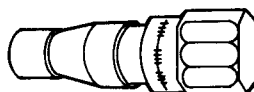
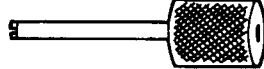
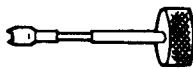
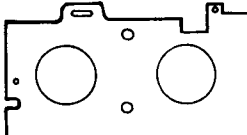
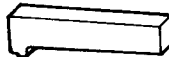
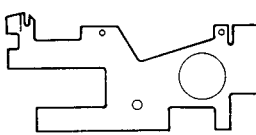
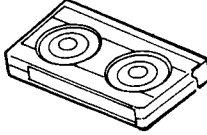
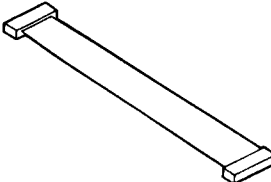
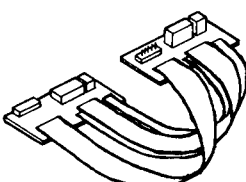
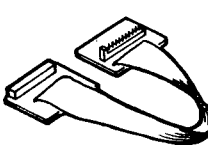
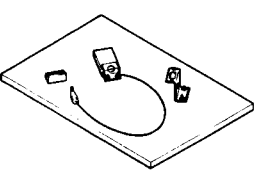
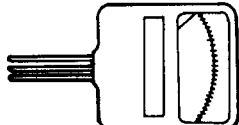
- | | |
|---------------------|---------------------------|
| 26. Deck PCB | 31. Loading Lever 2 Ass'y |
| 27. Reel Belt | 32. Slide Loading 2 |
| 28. Capstan DD Unit | 33. Loading Gear T Ass'y |
| 29. Worm Ass'y | 34. Loading Gear S Ass'y |
| 30. Cam 1 | 35. Cam 2 |

(FRONT LOADING UNIT)



- | | |
|------------------------------|---------------------|
| 1. Cassette Holder Sub Ass'y | 6. Clutch Gear |
| 2. Top Bracket Ass'y | 7. Synchro Gear |
| 3. Worm Ass'y | 8. Link Gear (R) |
| 4. Side Bracket R2 Ass'y | 9. Tape Guide Piece |
| 5. Wheel | |

SERVICING FIXTURES AND TOOLS

VHS Alignment Tape JG001 (CH-2/TTV-P2) JG001F (CH-2/TTV-P1) 	JG002B Adapter JG002F Dial Torque Gauge (60~600gr/cm) JG002G (100~1200gr/cm) 	JG005 Post Adjustment Screwdriver Parts No. SV-TG0-030-000 (Small) 	JG021A X-Nut Adjustment Screwdriver 2 
JG022 Master Plane 	JG024 Reel Disk Height Adjustment Jig 	JG036 Tension Post Adjustment Jig 	JG100 Torque Tape (VHT-103) 
JG104B Cable Parts No. SJ-G10-4B0-000 	JG105B Cable Parts No. SJ-G10-5B0-000 	JG106 Cable Parts No. SJ-G10-600-000 	JG107 Table Parts No. SJ-G10-700-000 
Tentelometer 			

Part No.	Remarks
JG001	Stair Steps, 6 KHz
JG001F	Color Bar, 1 KHz
JG002F	Playback Take Up Torque
JG002G	Fast Forward Torque, Rewind Torque, Brake Torque(Take up Reel/Supply Reel)
JG005	Guide Roller Adjustment
JG021A	X-Nut Adjustment
JG022/JG024	Reel Disk Height Adjustment
JG036	Tension Post Adjustment
JG100	Playback Back Tension Torque
JG104B	Used to connect the MAIN PCB and POWER PCB.
JG105B	Used to connect the DECK RELAY PCB and MAIN PCB.
JG106	Used to connect the MAIN PCB and DECK PCB.
JG107	Table for holding the DECK CHASSIS and MAIN PCB.

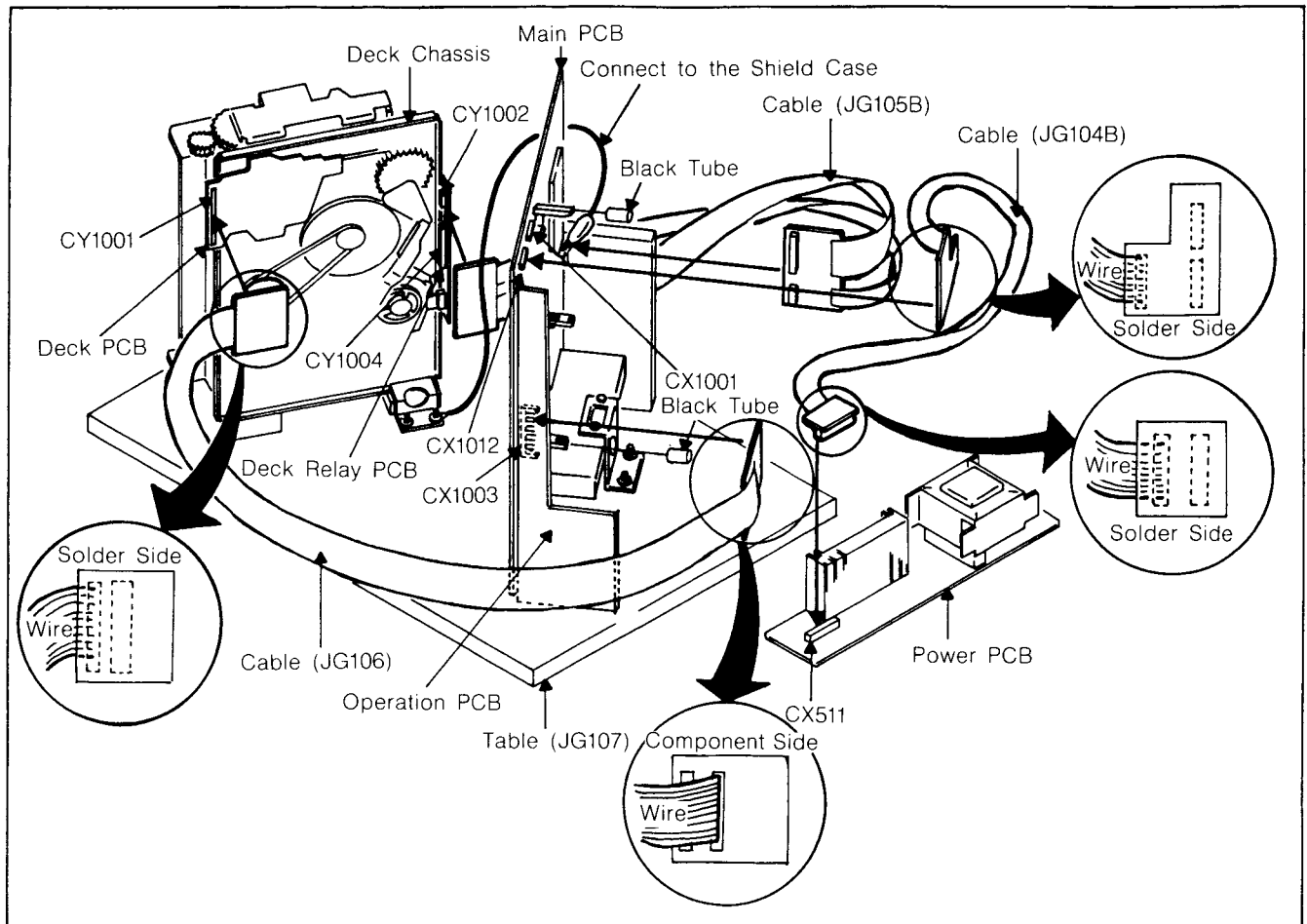
PREPARATION FOR SERVICING

How to use Servicing Fixture

1. Remove the Power PCB while the Main PCB is attached to the DECK Chassis. If it is necessary, remove the MAIN PCB from the DECK Chassis.
2. Connect as shown in the below figure using the SERVICE FIXTURE.
 - Connect the Main PCB to the Power PCB with the cable JG104B.
 - Connect the Main PCB to the Deck Relay PCB with the cable JG105B.
 - Connect the Main PCB to the Deck PCB with the cable JG106.

Note: In case of insertion cables for JG104B and JG106, observe the insertion directions.
(Refer to the circled illustrations below.)

3. When you operate the Deck, cover the sensors Q1001 and Q1002 with a black tube.
When you operate only the Main PCB, connect Pin 2 and Pin 13 of CX1003 to make it a short circuit.



VCR TEST TAPE INTERCHANGEABILITY TABLE

There are two types of the new alignment tape CH-1B (for NTSC) and CH-2 (for PAL). On each tape four signals (1) - (4) are recorded for the times and in the order shown below.

(1) : 8min. → (2) : 2min. → (3) : 5min. → (4) : 5min.

The TTV-MP1 (for M-PAL), TTV-MS1 (for MESECAM) and TTV-S1 (for SECAM) alignment tapes have the same contents as the previous tapes.

Method	Now in use TYPE		New TYPE		Application
	Model	Contents※1	Model	Contents※1	
NTSC	TTV-N1	NTSC, Color, 1kHz, SP	CH-1B(2)	NTSC, Stairsteps, 1kHz, SP	PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-N1E	NTSC, Color, 1kHz, EP	CH-1B(4) ※2	NTSC, Color, 1kHz, EP	Switching position ADJ.
	TTV-N2	NTSC, Stairsteps, 7kHz, SP	CH-1B(1)	NTSC, Stairsteps, 7kHz, SP	Head ACE azimuth ADJ.
	TTV-N12 (SCV-1998)	NTSC, Color, 1kHz, SP	CH-1B(4)	NTSC, Color, 1kHz, EP	FM envelope ADJ. A/C HEAD TILT ADJ.
	TTV-N7A	NTSC, Stairsteps, 1kHz, SP, HiFi 400Hz	CH-1B(3)	NTSC, Color, No sound SP, HiFi 400Hz	HiFi audio PB level ADJ.
PAL	TTV-P1	PAL, Color, 1kHz, SP	CH-2(2) ※3	PAL, Stairsteps, 1kHz, SP	Switching position ADJ. PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-P1L	PAL, Color, 1kHz, LP	CH-2(4)	PAL, Color, 1kHz, LP	Switching position. (LP Model) FM Envelope ADJ. (LP Model) A/C HEAD TILT ADJ. (LP Model)
	TTV-P2	PAL, Stairsteps, 6kHz, SP	CH-2(1)	PAL, Stairsteps, 6kHz, SP	Head ACE azimuth ADJ. FM Envelope ADJ. (SP Model) A/C HEAD TILT ADJ. (SP Model)
	TTV-P7	PAL, Stairsteps, 1kHz, SP, HiFi, 1kHz	CH-2(3)	PAL, Color, No sound SP, HiFi 400Hz	HiFi Audio PB Level ADJ.
	TTV-P16	PAL, Color, 400Hz, SP, HiFi 1kHz	No Changed.		FM Filter ADJ.

※ 1. Described in the order of color format. Video signal. Linear audio. Tape speed and Hi-Fi audio.

※ 2. Use CH-1B (1) - (3) with models used exclusively in the SP mode.

※ 3. Use CH-2 (3) and (4) when it is necessary to observe the chroma signal.

MECHANICAL ADJUSTMENTS

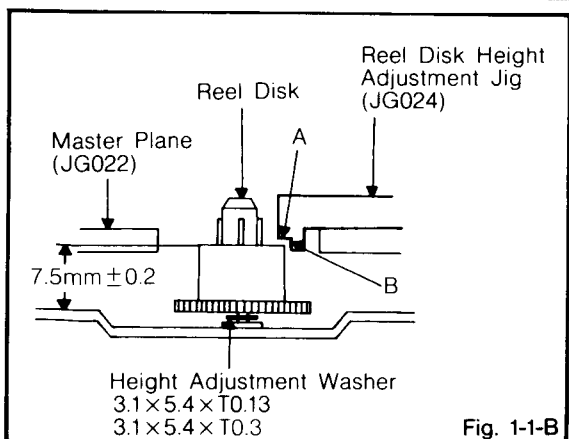
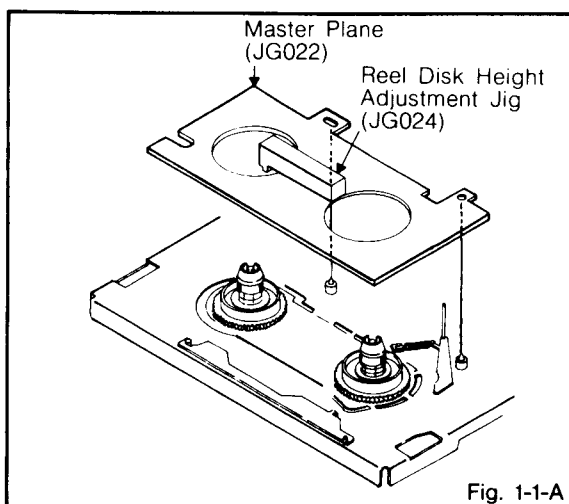
1. CONFIRMATION AND ADJUSTMENT

Read the following NOTED items before starting work.

- * Place an object which weighs between 350g and 500g on the Cassette Tape to keep it steady when you want to make the tape run without the front loading unit. (Do not place an object which weighs over 500g.)
- * When you activate the deck without the front loading unit, place a black tube over Q1002 (BOT) and Q1001 (EOT). EOT/BOT sensor will not function in this condition. Be sure to return the deck to its original condition after repairs are completed.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (JG022) and reel disk height adjustment jig (JG024) on mechanism framework, taking care not to scratch the drum, as shown in Fig. 1-1-A.
3. Confirm that the reel disk is lower than "A" of the reel disk height adjustment jig (JG024) on the master plane and higher than "B" as shown in Fig. 1-1-B. If it is not, adjust to less than 7.5mm ± 0.2 mm with the height adjustment washer.
4. Perform the same adjustment for the other reel.

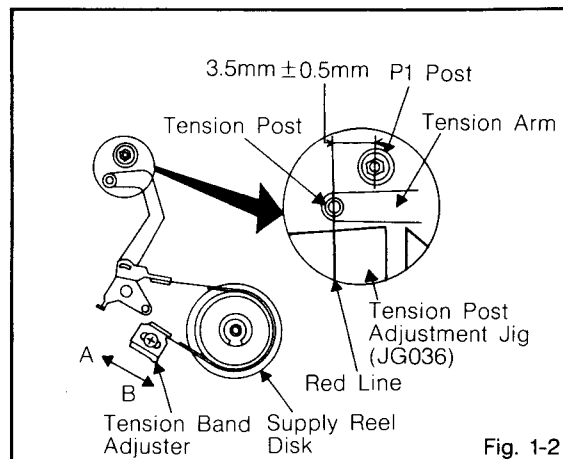


1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Turn on the power and set to the PLAY mode by using the tension post adjustment jig (JG036).
2. Move the tension band adjuster to the "A" or the "B" direction to set tension post adjustment jig red line to the round center of the tension post. (Refer to Fig. 1-2)

When you don't use the jig (JG036), adjust tension arm so that the measurement from the round center of the P1 post to the round center of the tension post is 3.5mm ± 0.5 mm. (Refer to Fig. 1-2)

3. Confirm that the video tape is not curling at the flange of P1 post or is not running on flanges.

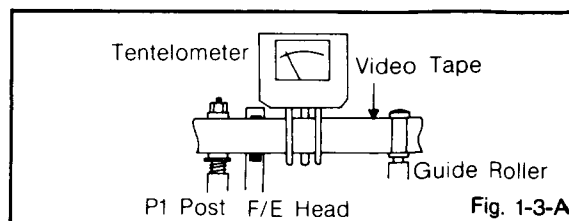


1-3: CONFIRMATION AND ADJUSTMENT OF BACK TENSION ON PLAYBACK

1. Load a video tape recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in Fig. 1-3-A. Confirm the value is within 22~30gr/cm at this time.
3. Adjust when it does not satisfy the above items. Set the tension arm spring to "A" direction when the torque meter indicates more than 30gr/cm. (Refer to Fig. 1-3-B) Set the tension arm spring to "B" direction when the torque meter indicates less than 22gr/cm. (Refer to Fig. 1-3-B)

* IN CASE OF USING A CASSETTE TYPE TORQUE TAPE.

1. After adjustment, confirm and adjust the tension post position (Refer to item 1-2) for the tension arm, install the cassette type torque tape (JG100) and set to the PLAY mode.
2. Confirm that the left hand side tension value of the torque tape is 40~60gr/cm for the standard mode tape.



MECHANICAL ADJUSTMENTS

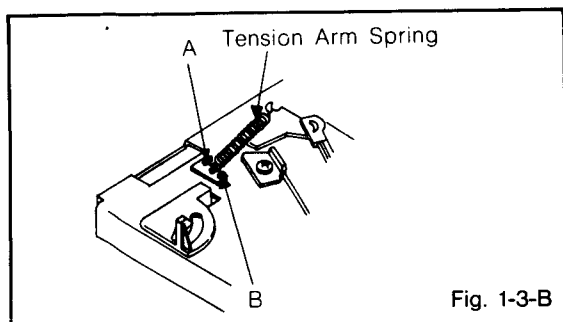


Fig. 1-3-B

1-4: CONFIRMATION OF FAST FORWARD TORQUE

1. Set torque gauge (JG002G) on take-up reel disk, and place unit in FAST FORWARD mode. (Refer to Fig. 1-4)
2. Confirm that torque is more than 800gr/cm.

NOTE

After setting the torque gauge on the reel disk, hold the gauge in place. Push the FAST FORWARD button and the reel disk will begin to turn.

1-5: CONFIRMATION OF REWIND TORQUE

1. Operate within 4 or 5 seconds after the reel disk begins to turn.
2. Set torque gauge (JG002G) on supply reel disk, and place the unit in REWIND mode. (Refer to Fig. 1-4)
3. Confirm that torque is more than 800gr/cm.

NOTE

After setting the torque gauge on the reel disk, hold the gauge in place. Push the REWIND button and the reel disk will begin to turn.

1-6: CONFIRMATION OF PLAYBACK TAKE-UP TORQUE

1. Set the torque gauge (JG002F) on the rewind reel disk, then check PB mode.
Or
Load the cassette type torque tape (JG100), then set it to PB mode.
2. Make sure that the torque covers the range, 60~150gr/cm.

1-7: CONFIRMATION OF REEL BRAKE TORQUE

(Take-Up Reel Brake) (Refer to Fig. 1-4)

1. Set to STOP mode.
2. Set the torque gauge (JG002G) to the take-up reel and turn it counterclockwise.
3. Confirm that it is more than 200gr/cm at that time.

(Supply Reel Brake) (Refer to Fig. 1-4)

1. Set to STOP mode.
2. Set the torque gauge (JG002G) to the supply reel and turn it clockwise.
3. Confirm that it is more than 200gr/cm at that time.

NOTE

Separate the idler from the reel and confirm the brake torque.

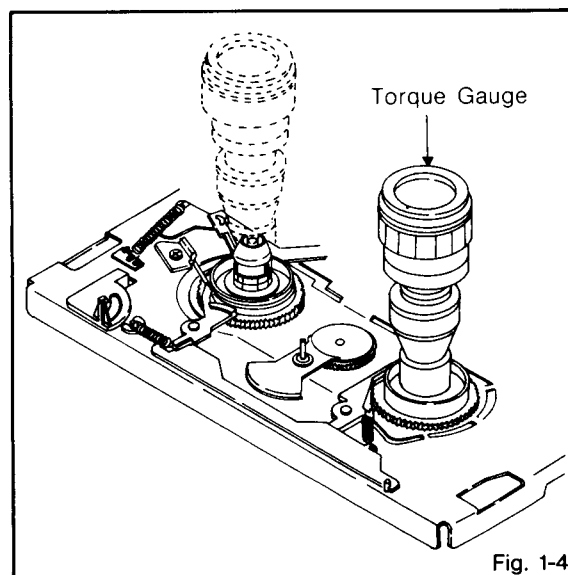


Fig. 1-4

NOTE

If the torque value checked is out of tolerance, replace the appropriate parts as follows.

Check Items	Replace Parts
1-4	Idler Ass'y or Reel Belt
1-5	Idler Ass'y or Reel Belt
1-6	Idler Ass'y or Reel Belt or Clutch Ass'y
1-7	Main Brake T Ass'y or Main Brake S Ass'y

2. TAPE RUNNING CONFIRMATION AND ADJUSTMENT

Tape running is adjusted precisely at the factory. Normally, it is not necessary to make adjustments. It is necessary to confirm and make adjustments when the parts of the tape running mechanism are replaced because of extensive usage or failure.

2-1: GUIDE ROLLER

1. Connect CH-1 on the oscilloscope to TP4003 (PB Envelope) and CH-2 to TP1001 (SW Pulse).
2. ① Insert the VHS alignment tape (JG001) into the unit.
② When the TAKE UP REEL (rewind) of the tape is started to run, at the same time within 0.5 seconds press the tracking (+) or (−) button once to set the tracking to the center position.

NOTE: If you do not press the tracking button within 0.5 seconds, the tracking will not be set to the center position because of the Auto Tracking Search Repeat step ①.

3. Carry out this adjustment in PLAY mode.
4. Trigger with SW pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. Adjust the guide roller height while observing the envelope, and make the envelope flat. Adjust the envelope so that the flatness will not be affected even when the tracking control button is pressed. (Use the adjustment screwdriver JG005).

MECHANICAL ADJUSTMENTS

- Press and hold the tracking control button and (at the point that the envelope waveform starts to reduce) adjust the envelope so that its A : B ratio is better than 3 : 2.

(Refer to Fig. 2-1-B)

- Adjust the PG shifter (**ELECTRICAL ADJUSTMENTS : ITEM 3-1**) in the PLAY mode.

NOTE

After adjustment, confirm and adjust A/C head tilt. (Refer to item 2-2)

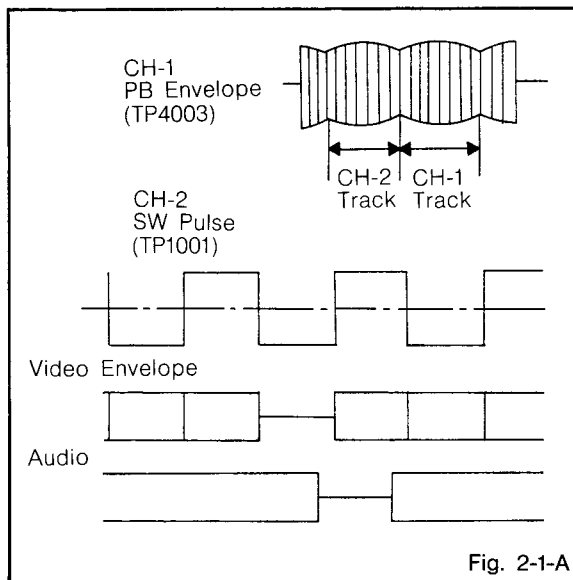


Fig. 2-1-A

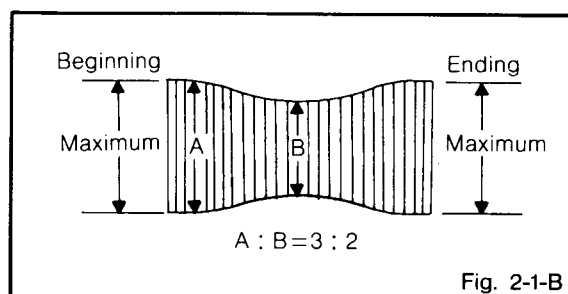


Fig. 2-1-B

2-2: CONFIRMATION AND ADJUSTMENT OF A/C HEAD TILT

When the tape is running abnormally, perform the following adjustments.

- Insert a new tape and play it back.
- Confirm that there is no crease on the tape between the P4 post and guide roller(R) and the tape is running smoothly. (It is absolutely impossible to get satisfactory sound if the tape is distorted between the A/C head and P4 post.)
- If the tape still does not run smoothly, turn the screw ① and adjust the tilt of the A/C head. (Refer to Fig. 2-2)

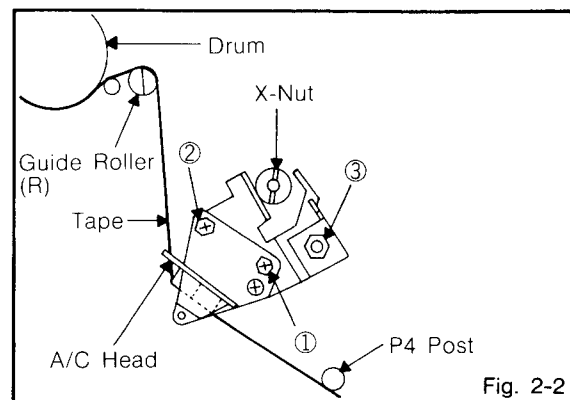


Fig. 2-2

2-3: ADJUSTMENT OF A/C HEAD HEIGHT AND AZIMUTH

- Play back a VHS alignment tape (JG001) and observe the waveform at the audio output terminal.
- Turn the screw ② slowly to change the azimuth of the A/C head. Adjust the azimuth so that the audio output becomes maximum. (Refer to Fig. 2-2)
- Adjust the nut ③, (Refer to Fig. 2-2) until the height of the A/C head reaches the position against the tape as shown in Fig. 2-3.

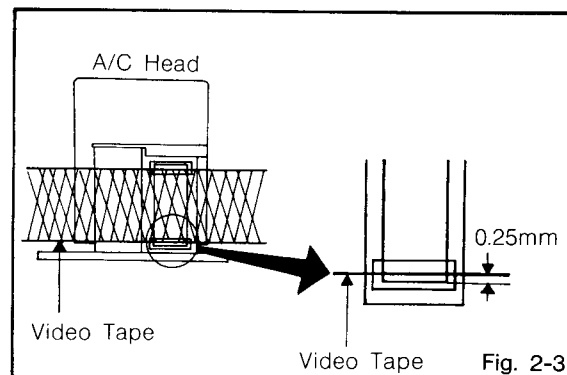


Fig. 2-3

2-4: TAPE RUNNING ADJUSTMENT

- Adjust the height of reel disk. (Refer to item 1-1)
- Confirm and adjust tension post position. (Refer to item 1-2)
- Adjust the guide roller. (Refer to item 2-1)
- Adjust the A/C head tilt. (Refer to item 2-2)
- Adjust the A/C head height and azimuth. (Refer to item 2-3)
- Connect CH-1 on the oscilloscope to TP4003 and CH-2 to TP1001. Insert the VHS alignment tape (JG001F) into the unit. Set the tracking control to the center position. Turn the X-nut using the X-nut adjustment screwdriver 2 (JG021A) (Refer to Fig. 2-2). Adjust the X-nut for the envelope to be maximum. (Refer to Fig. 2-1-A)

ELECTRICAL ADJUSTMENTS

3. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

Inferior silicon grease can damage IC's and transistors. When replacing IC's or transistors, use a silicon grease. Remove all old silicon before applying new silicon.

3-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK

Input signal-Alignment Tape (JG001F)

NOTE

Set the tracking to center position.

(MECHANICAL ADJUSTMENTS-ITEM 2-1, No.2)

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to TP1001 and CH-2 to TP4501.
2. Adjust VR1001 so that the waveform of the oscilloscope measures $6.5 \pm 0.5(H)$ at both leading and trailing edges. (Refer to Fig. 3-1-A, B)

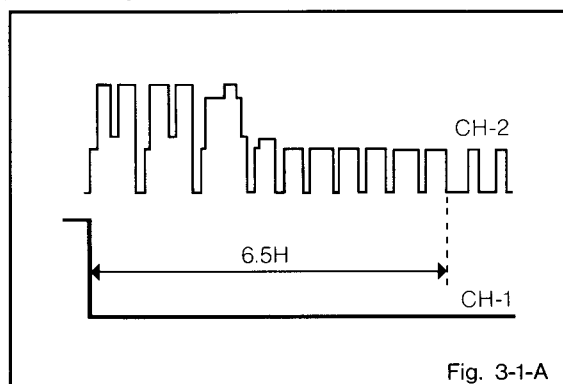


Fig. 3-1-A

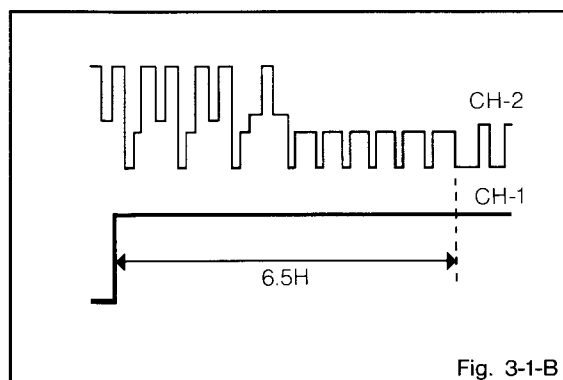


Fig. 3-1-B

3-2: PB AUDIO LEVEL

CONDITIONS

MODE-Self (RECORD and PLAYBACK) (SP MODE)

Input signal-Audio Signal: 1KHz 500mVrms
(AUDIO IN JACK)

Video Signal: PAL Color Bar
(VIDEO IN JACK)

INPUT SELECT: AU

NOTE

AUDIO OUT JACK of the unit should be terminated with 47K ohm load.

INSTRUCTIONS

1. Connect the color bar generator to VIDEO IN JACK.
2. Connect the audio generator to AUDIO IN JACK.
3. Connect the AC voltmeter to AUDIO OUT JACK.
4. After the input of audio signal and video signal, proceed with the recording.
5. Play back the recorded section and adjust VR5001 so that the AC voltmeter value is $500 \pm 10mVrms$.

3-3: VCO FREQUENCY

CONDITIONS

MODE-RECORD (SP MODE)

Input signal-No Signal

AUDIO OUTPUT SW: STEREO POSITION

INPUT SELECT: AU

INSTRUCTIONS

1. Connect the frequency counter between the condenser (C5534) and the resistor (R5539).
2. Adjust the VR5504 (L-CH) so that the value of the frequency counter is $1.4 MHz \pm 5KHz$.
3. Then, connect the frequency counter between the condenser (C5533) and resistor (R5540).
4. Adjust the VR5503 (R-CH) so that the value of the frequency counter is $1.8MHz \pm 5KHz$.

3-4: REC DEVIATION

CONDITIONS (SIMPLE METHOD)

MODE-RECORD (SP MODE)

AUDIO OUTPUT SW: STEREO POSITION

INPUT SELECT: AU

Input signal-Alignment Tape (JG001F)

INSTRUCTIONS

1. Connect the AC Voltmeter and terminated with 47K ohm load to AUDIO OUT JACK.
2. Adjust the VR5502(L-CH) and VR5501(R-CH) so that the value of the AUDIO OUT PUT is $400mV \pm 10mVrms$.

CONDITIONS

MODE-RECORD (SP MODE)

AUDIO OUTPUT SW: STEREO POSITION

INPUT SELECT: AU

Input signal-Audio Signal: 1KHz 500mVrms

INSTRUCTIONS

1. Connect the Spectrum Analyzer pin 1 of CP5501.
2. Adjust the VR5502(L-CH) and VR5501(R-CH) so that the waveforms becomes as shown in Fig. 3-2.

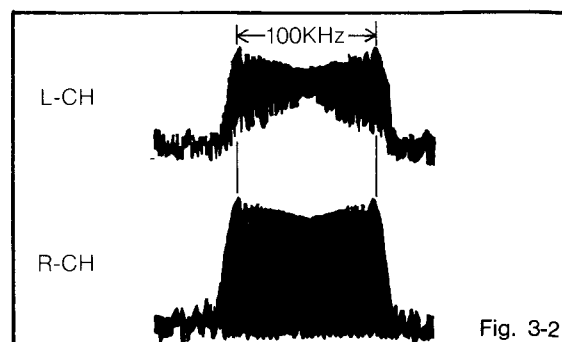


Fig. 3-2

ELECTRICAL ADJUSTMENTS

3-5: PILOT

CONDITIONS

MODE-RECORD (SP MODE)

AUDIO OUTPUT SW: STEREO POSITION

Input signal- RF signal

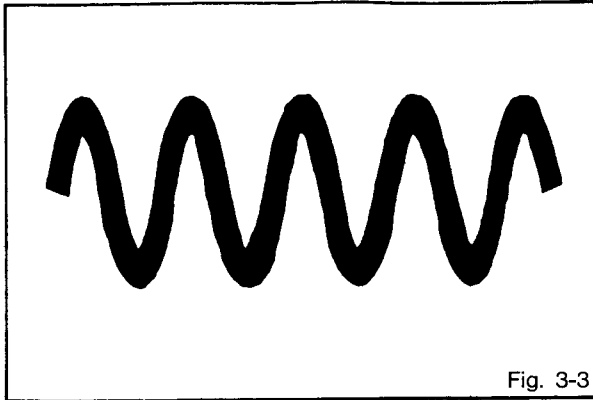
Audio Signal- R ch 1KHz

Video Signal- L ch 3KHz

AFT ON position

INSTRUCTIONS

1. Connect the Oscilloscope to **TP6601**.
2. Adjust the **L6603** so that the waveforms becomes as shown in Fig. 3-3.



3-6: SEPARATION

CONDITIONS

MODE- RECORD (SP MODE)

AUDIO OUTPUT SW: STEREO POSITION

Input signal-RF signal

Audio Signal- R ch 1KHz

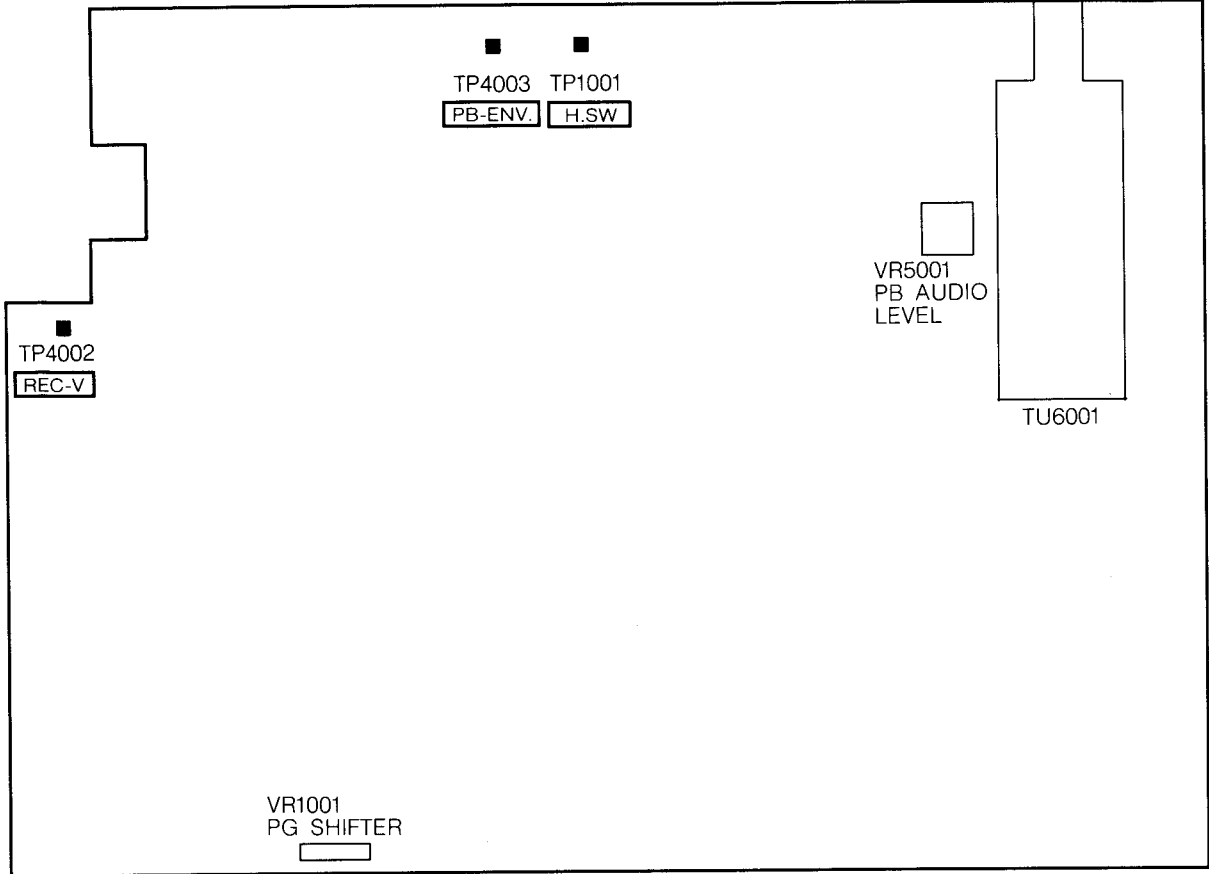
Video Signal- L ch No signal

AFT ON position

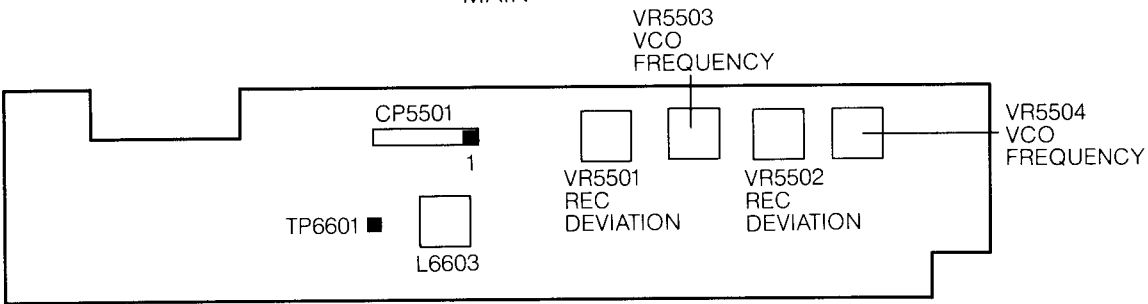
INSTRUCTIONS

1. Connect the AC Voltmeter to **AUDIO OUT JACK (R ch)**.
2. Adjust the **VR6601** so that the Audio out level is minimum.

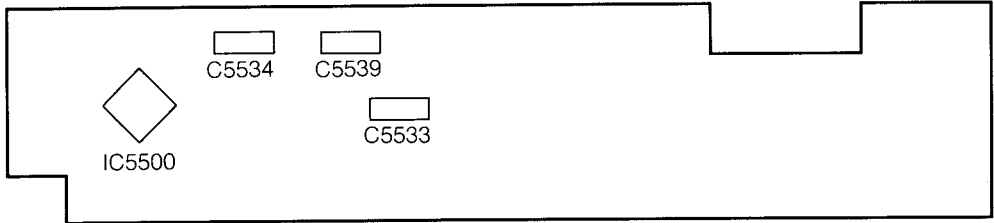
MAJOR COMPONENTS LOCATION GUIDE



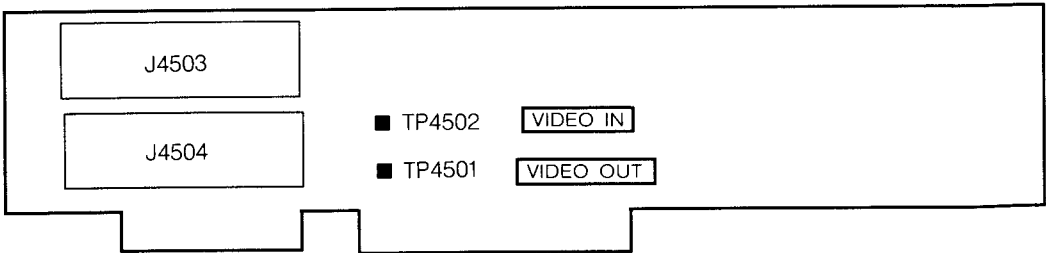
MAIN



Hi-Fi (COMPONENT SIDE)

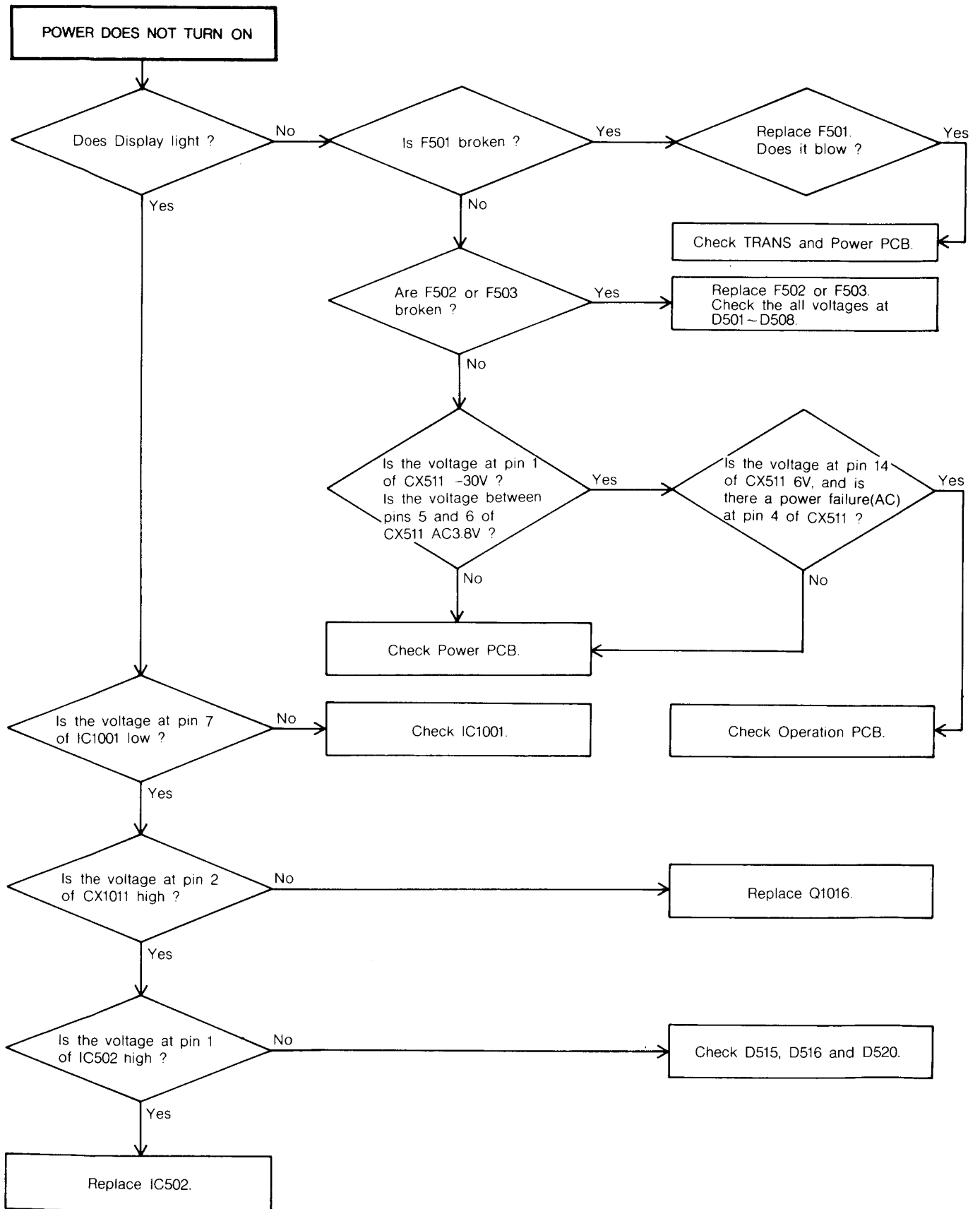


Hi-Fi (SOLDER SIDE)

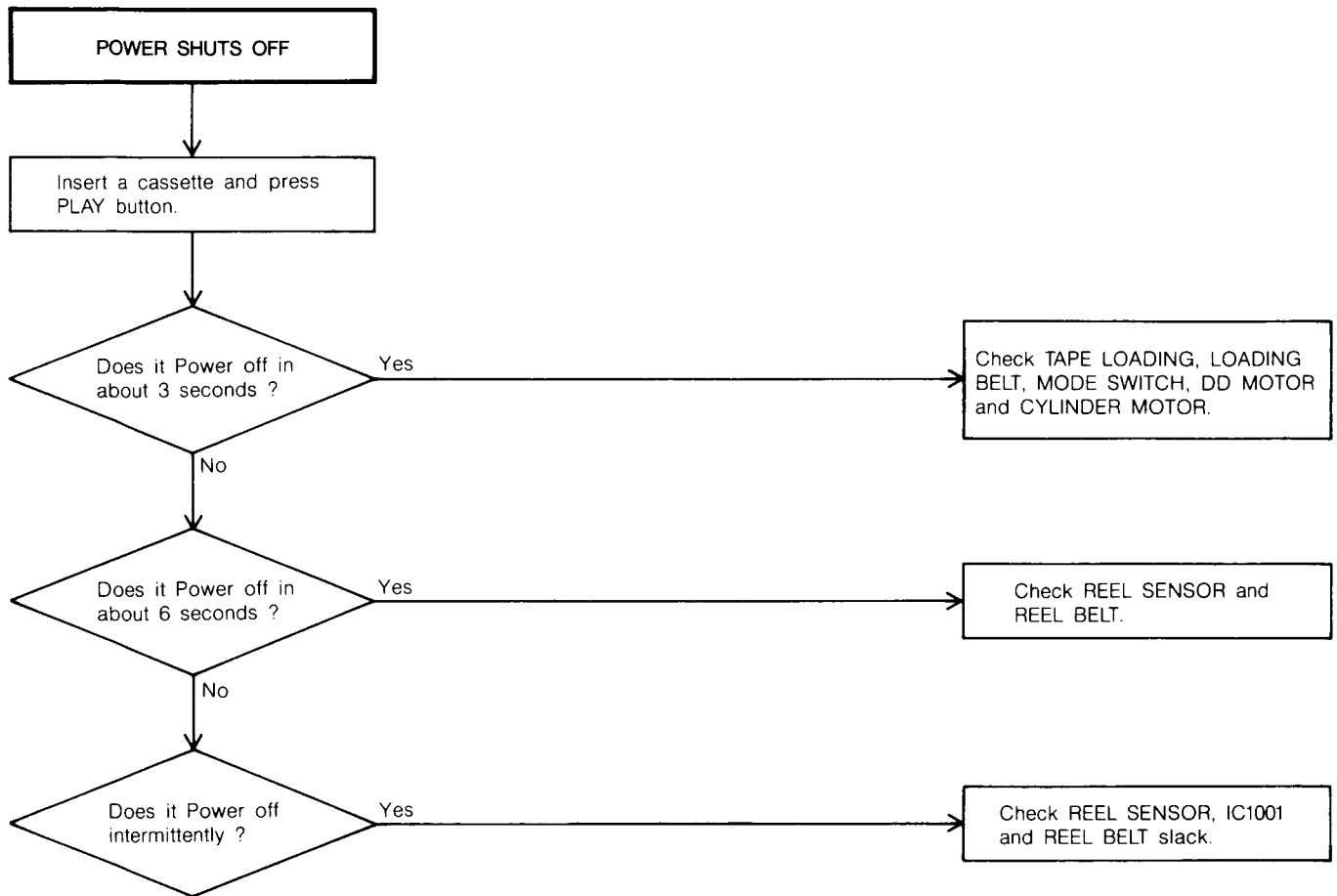


21 PIN

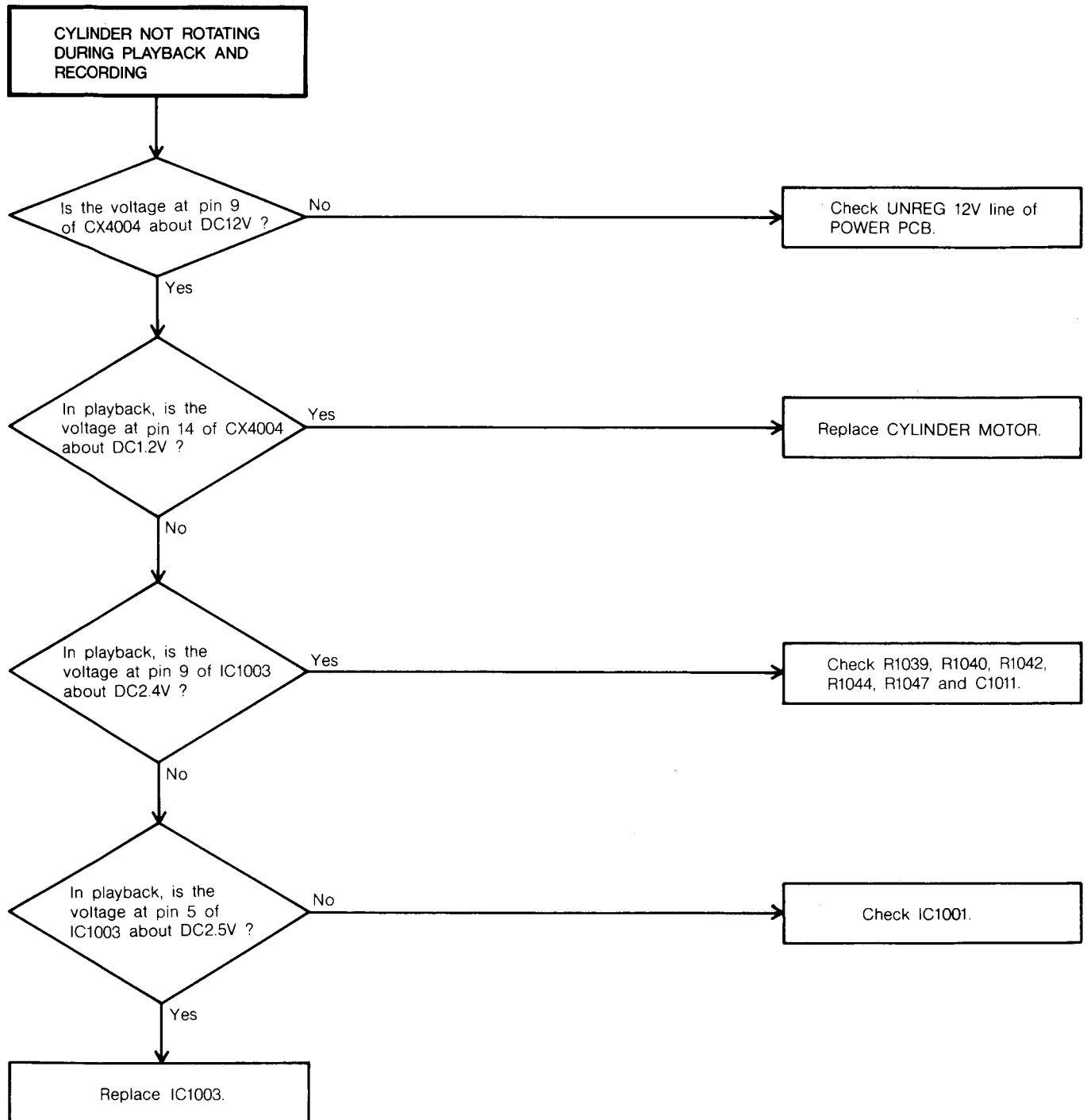
TROUBLESHOOTING GUIDE



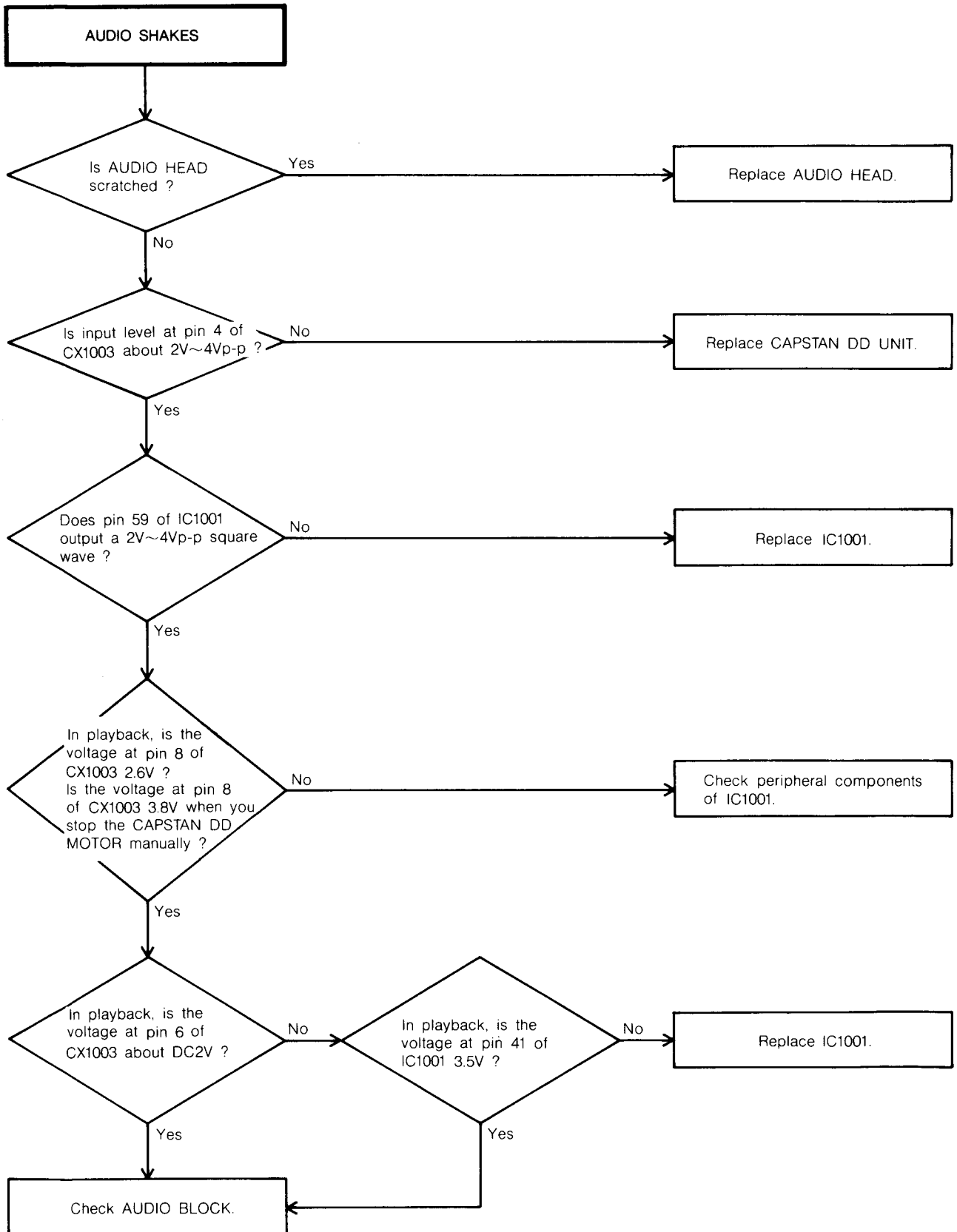
TROUBLESHOOTING GUIDE



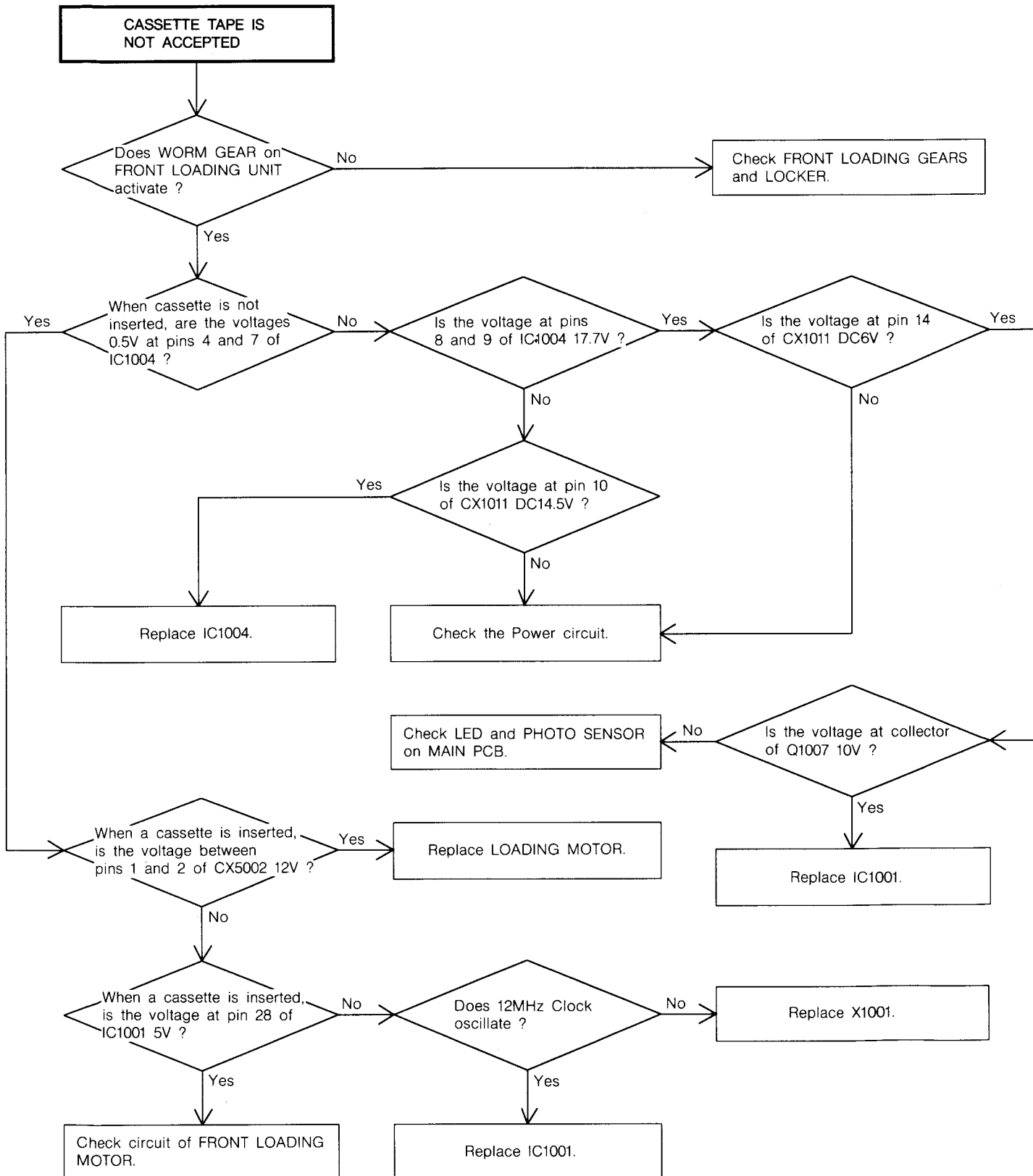
TROUBLESHOOTING GUIDE



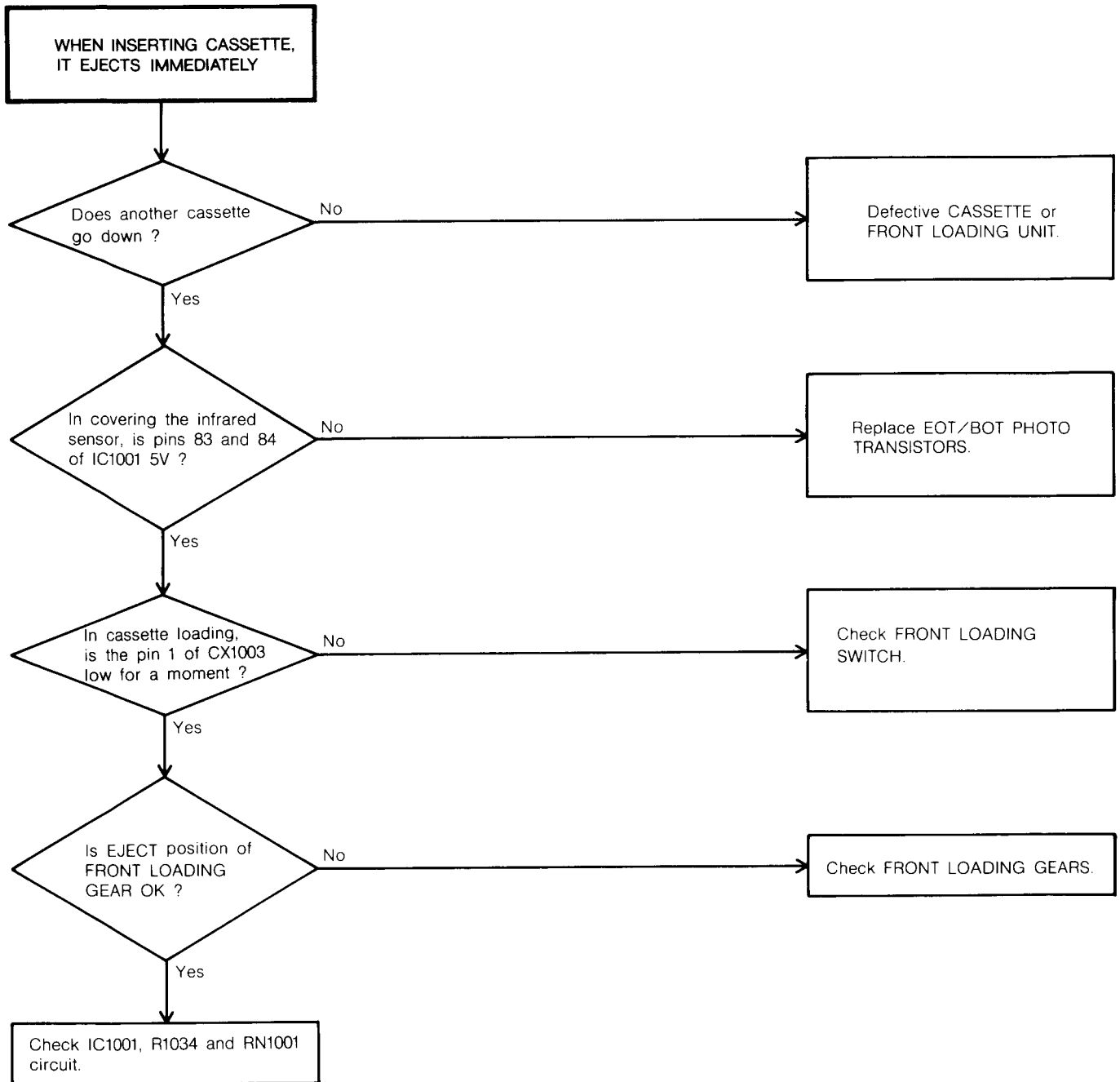
TROUBLESHOOTING GUIDE



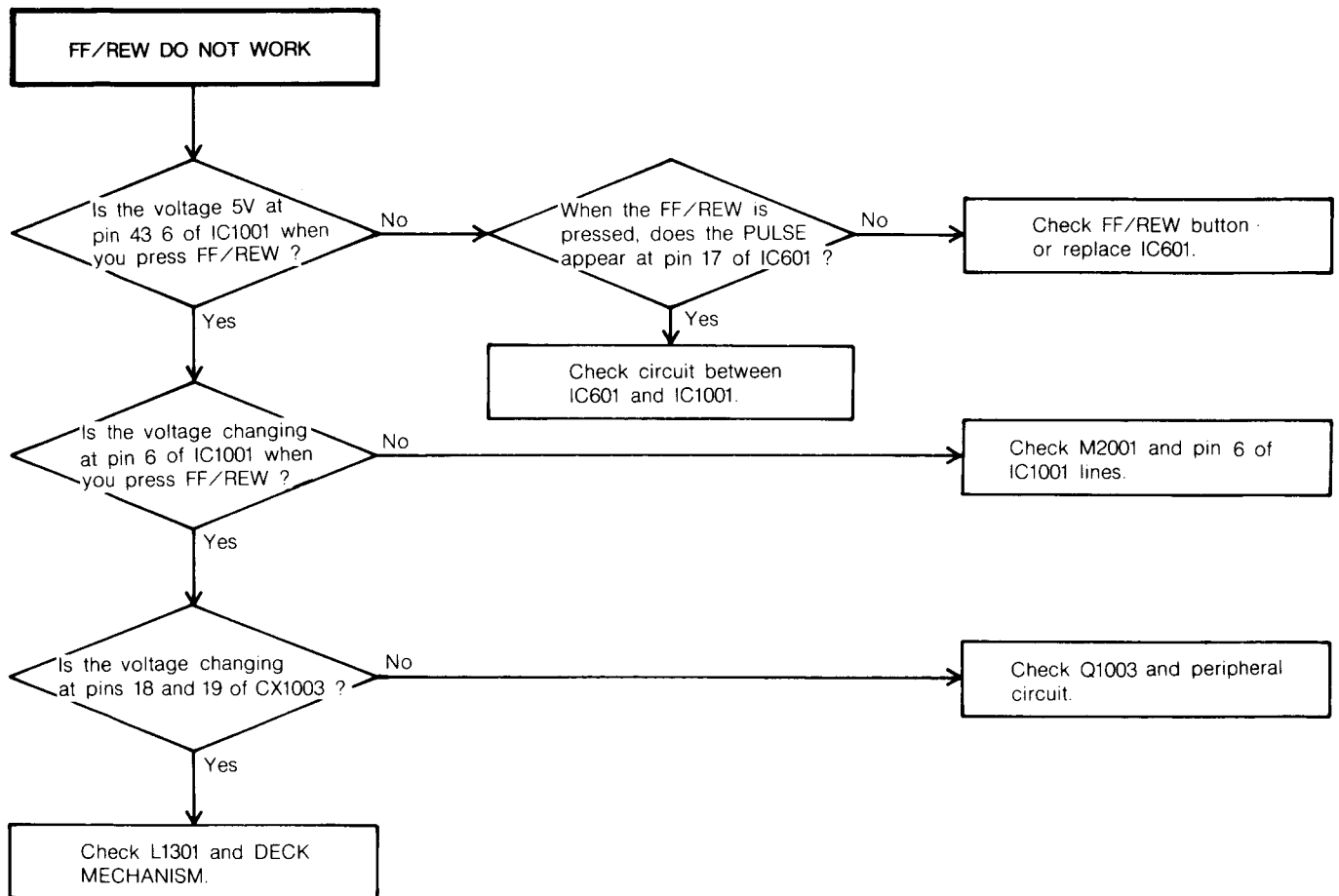
TROUBLESHOOTING GUIDE



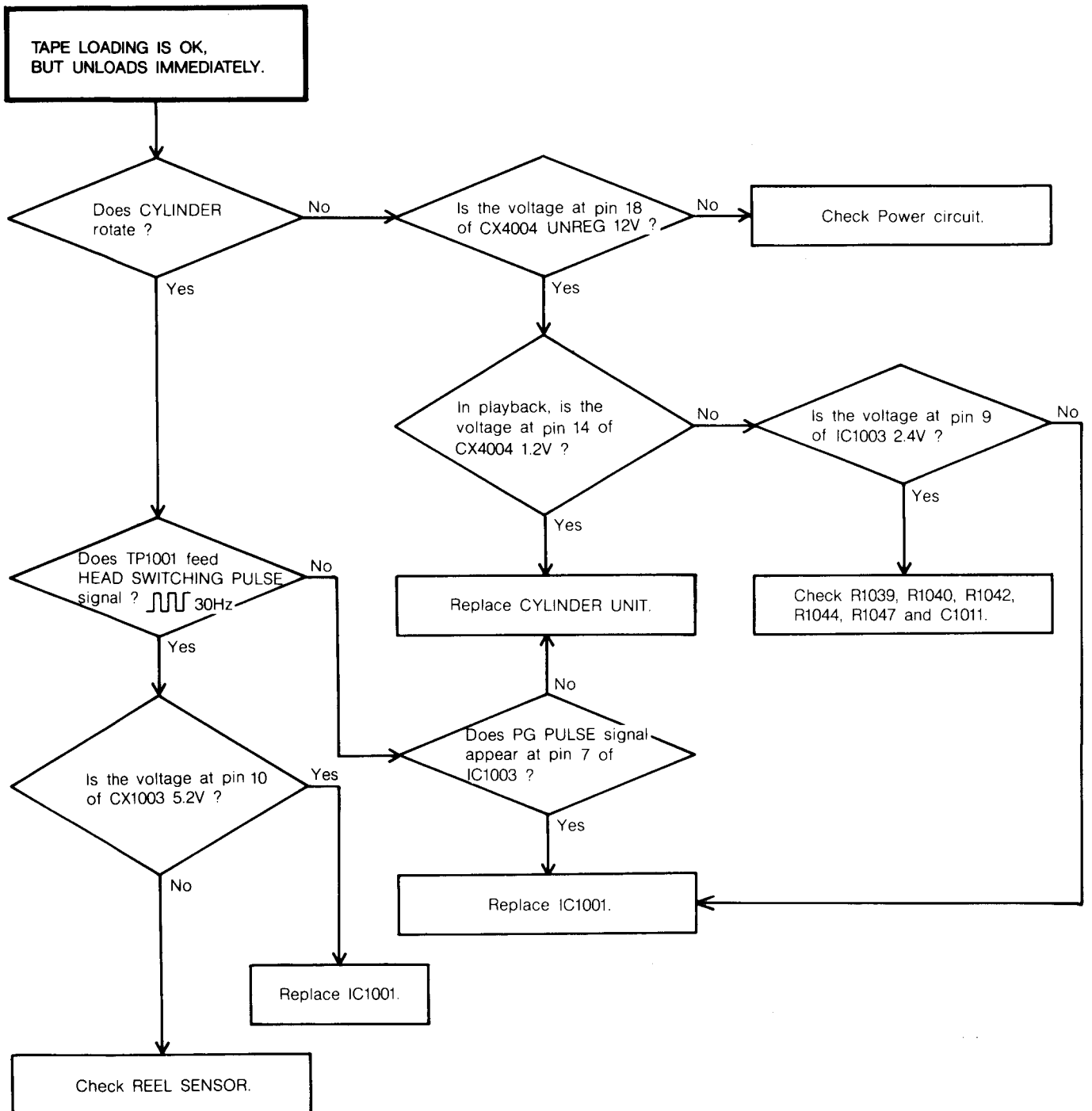
TROUBLESHOOTING GUIDE



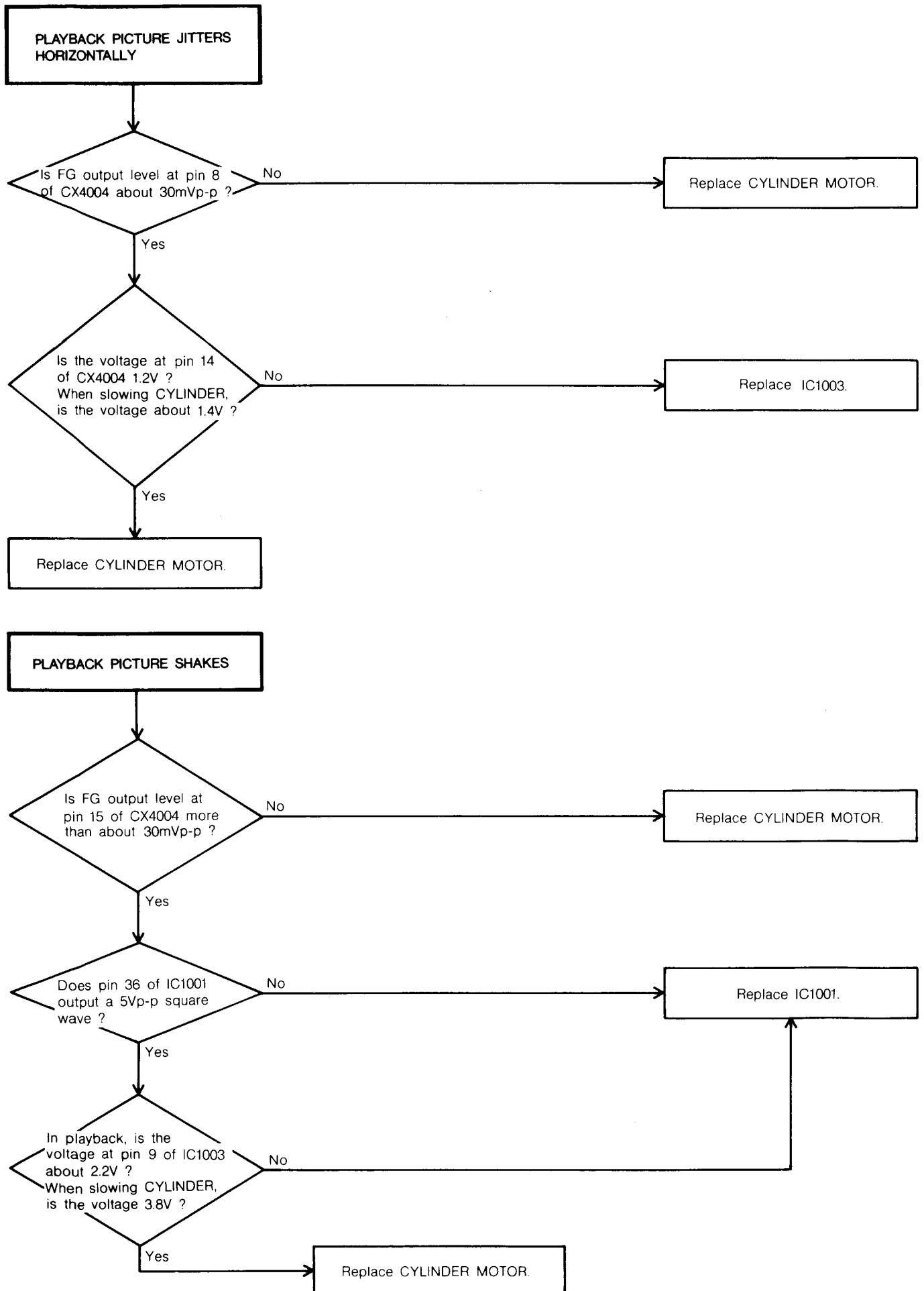
TROUBLESHOOTING GUIDE



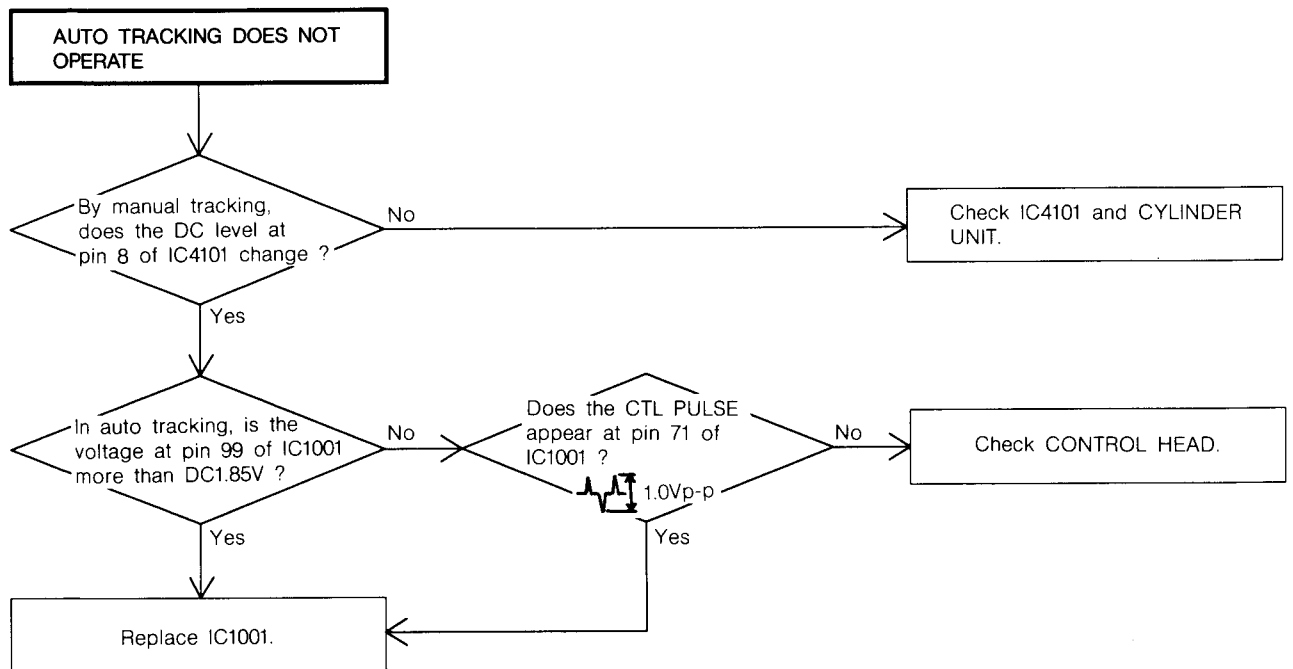
TROUBLESHOOTING GUIDE



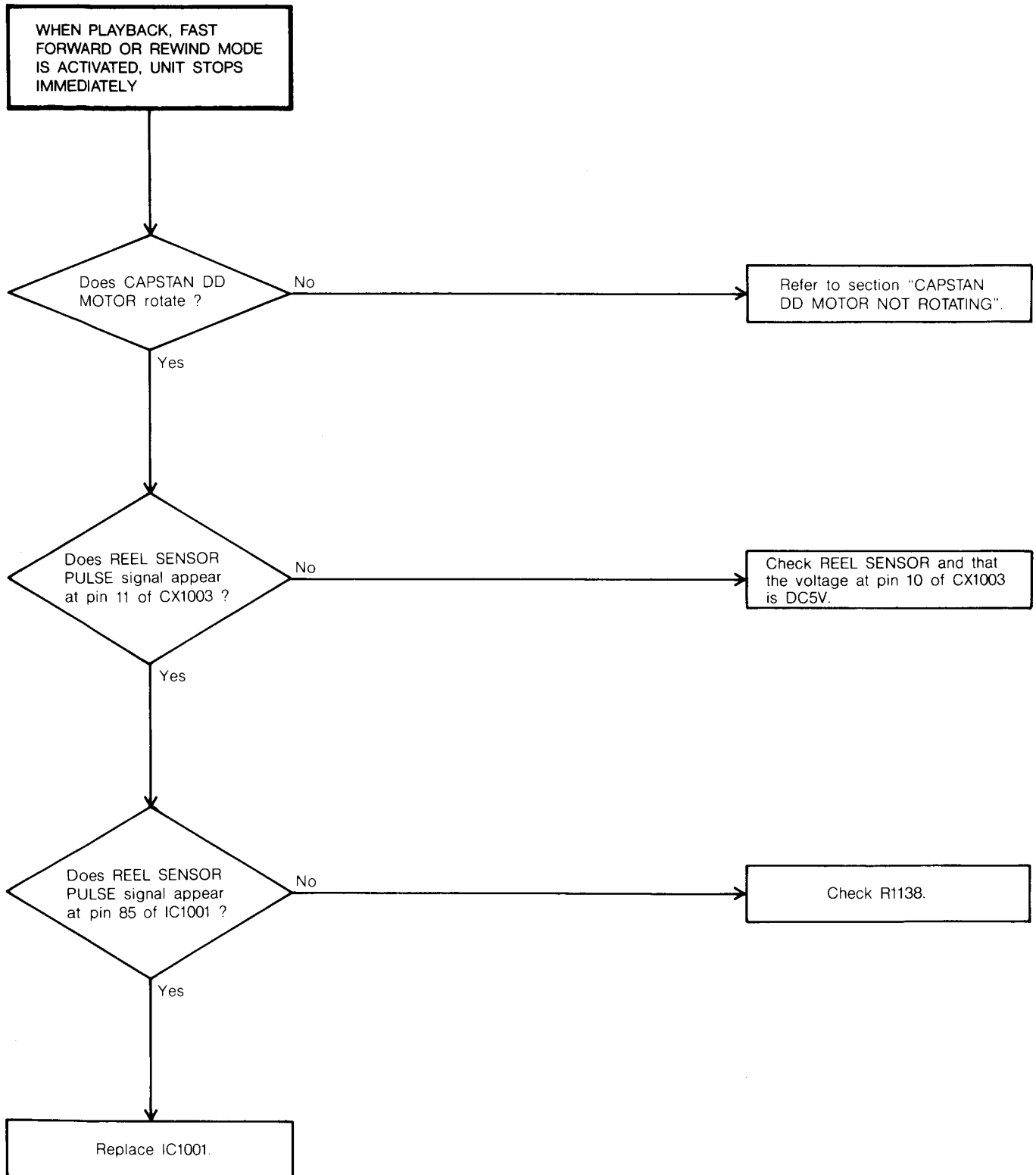
TROUBLESHOOTING GUIDE



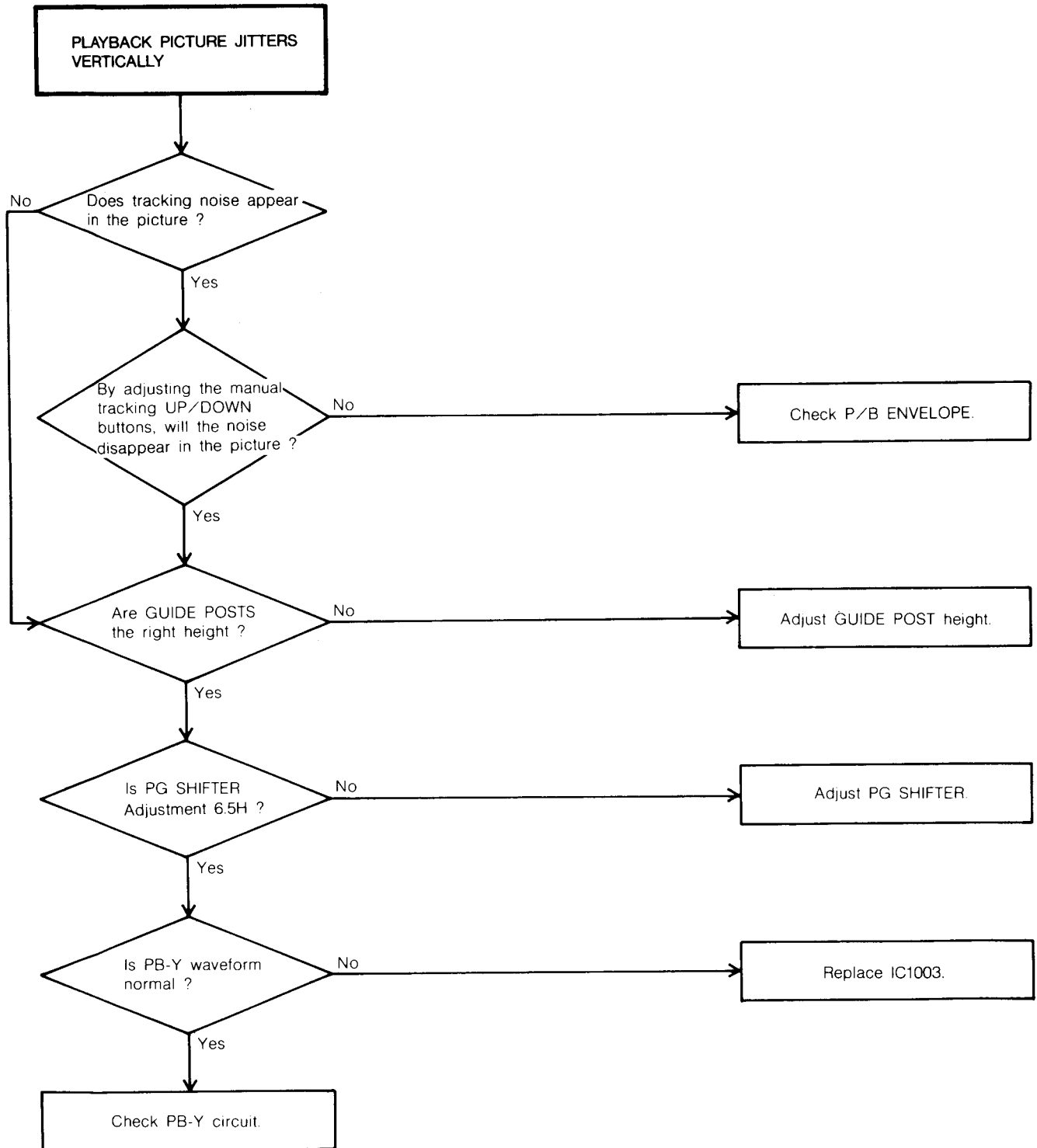
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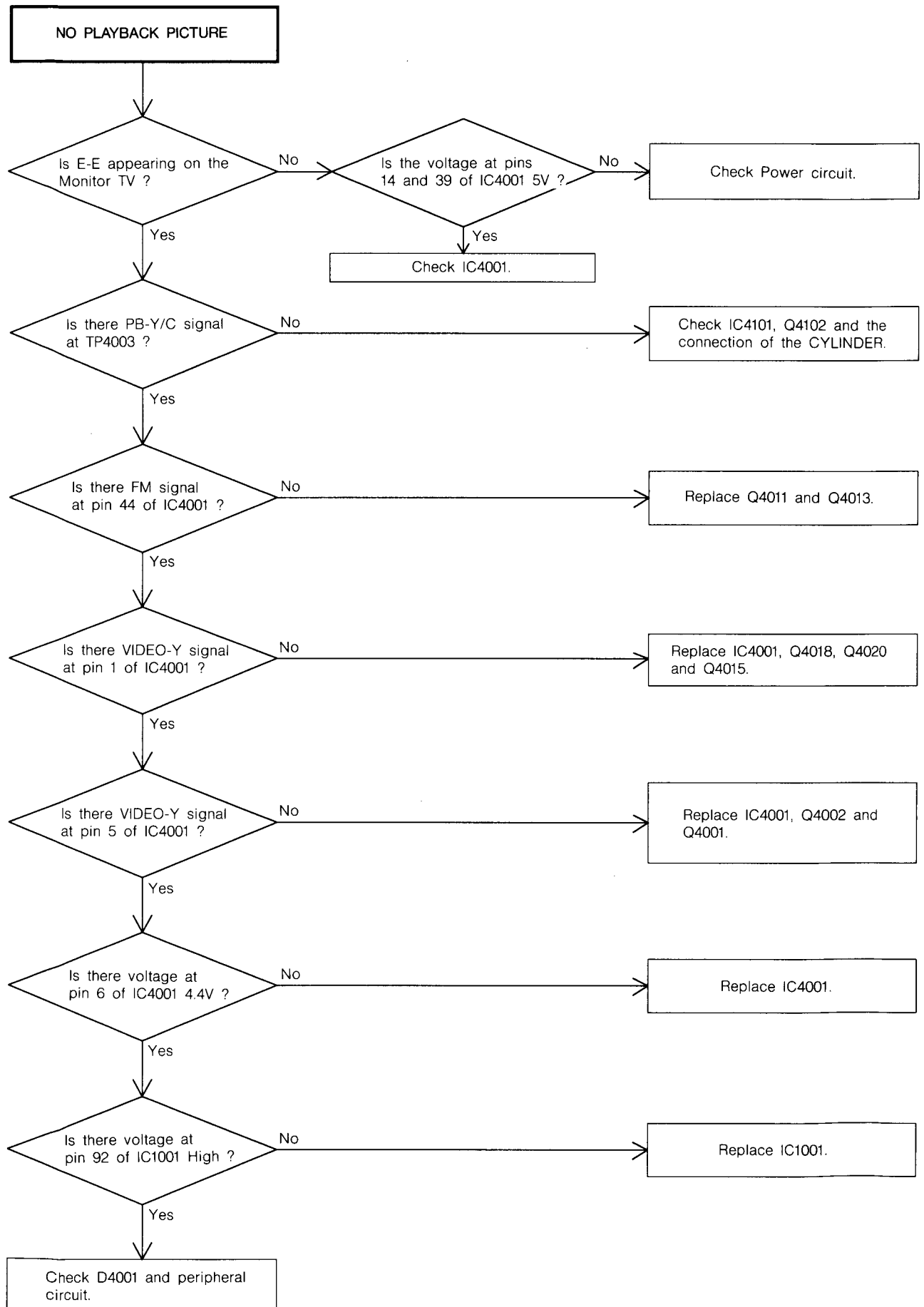
TROUBLESHOOTING GUIDE



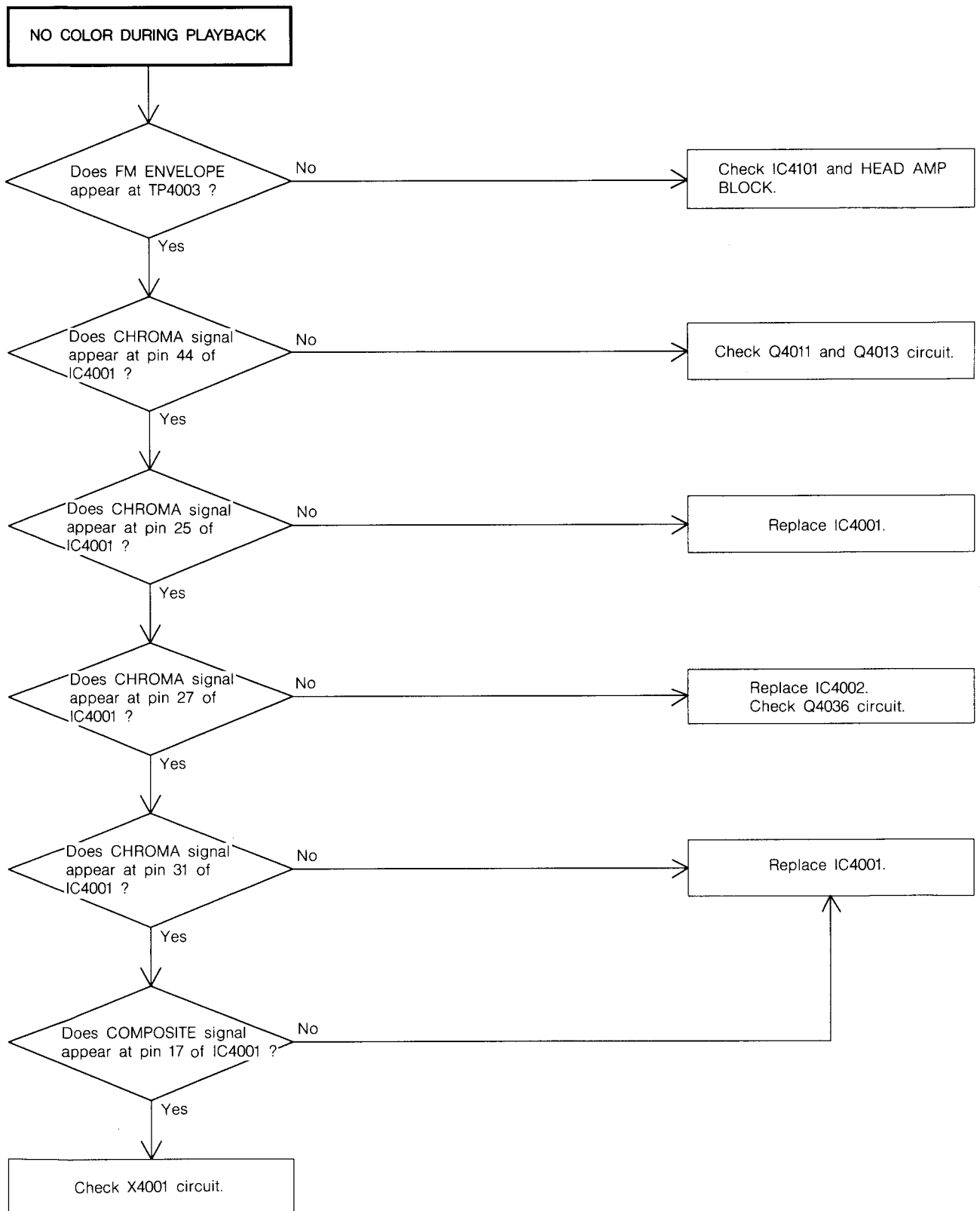
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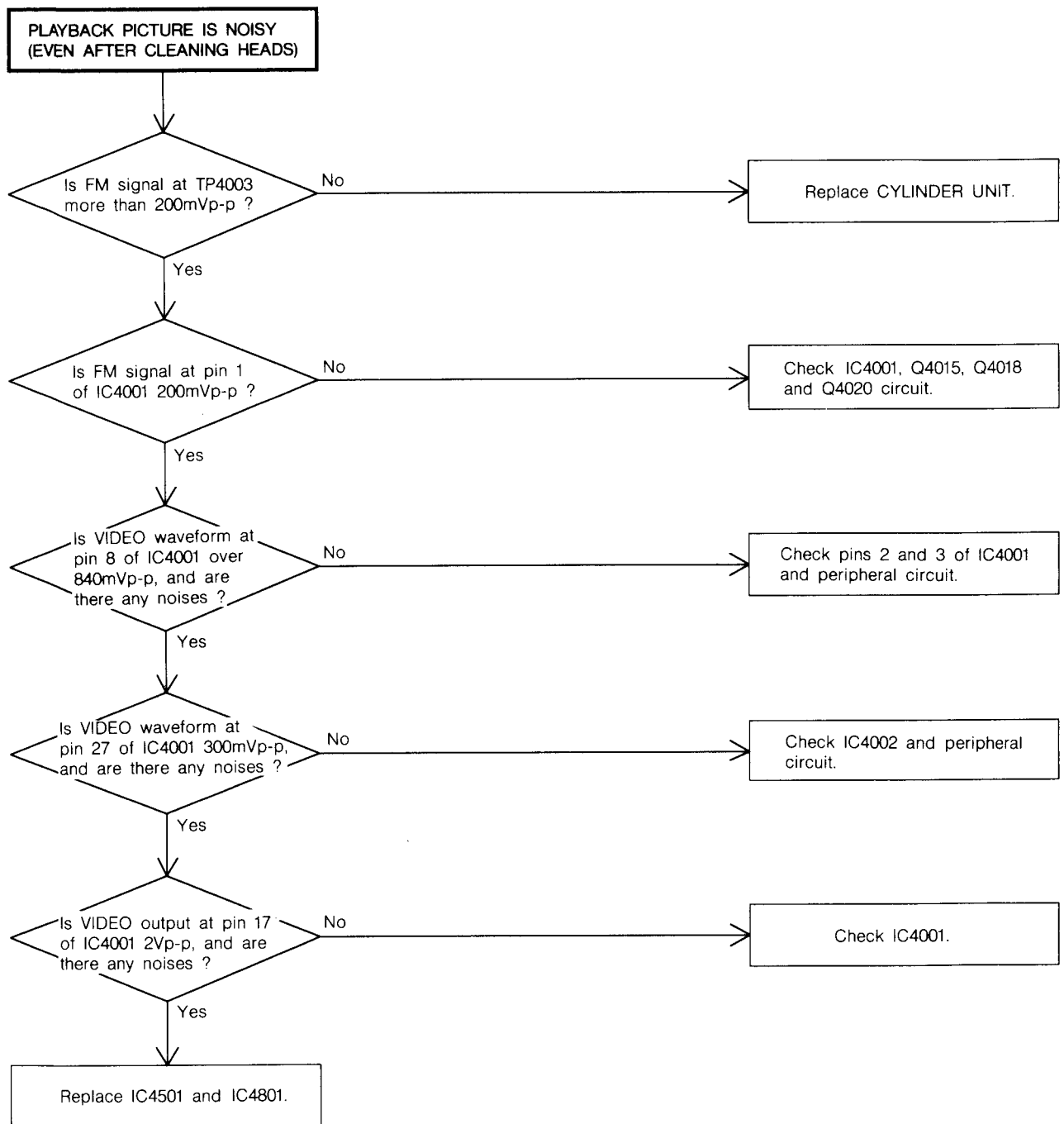
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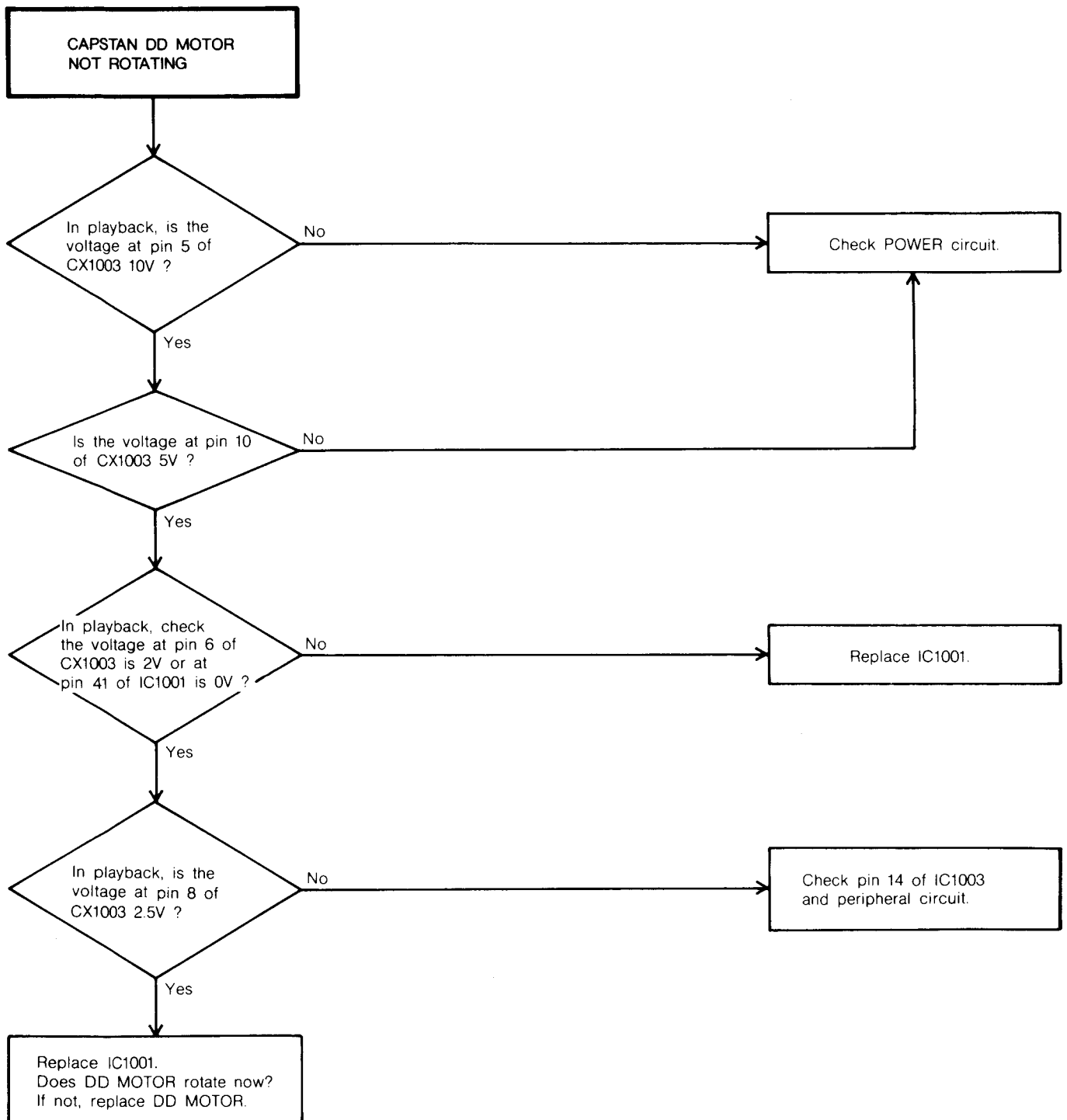
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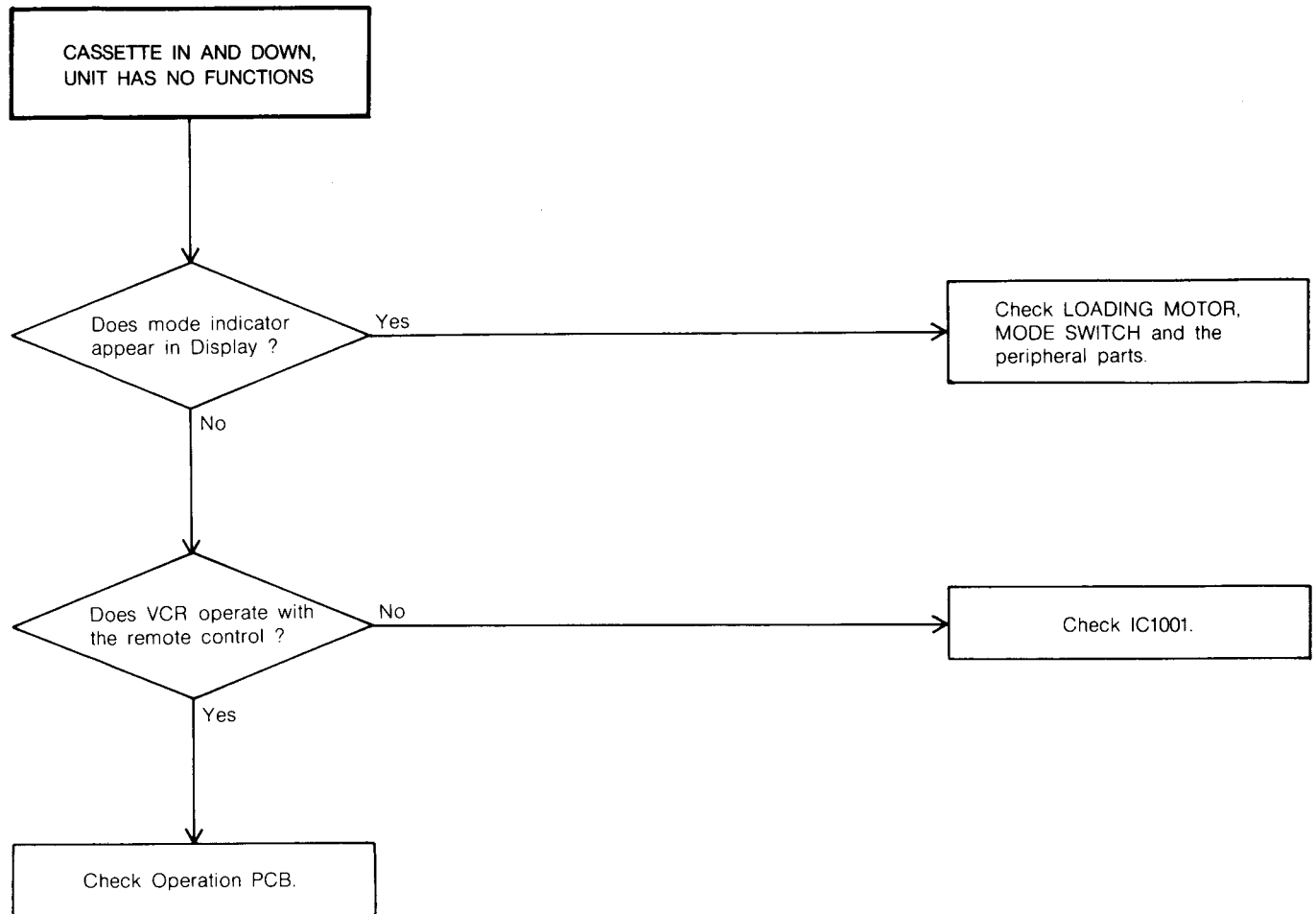
TROUBLESHOOTING GUIDE



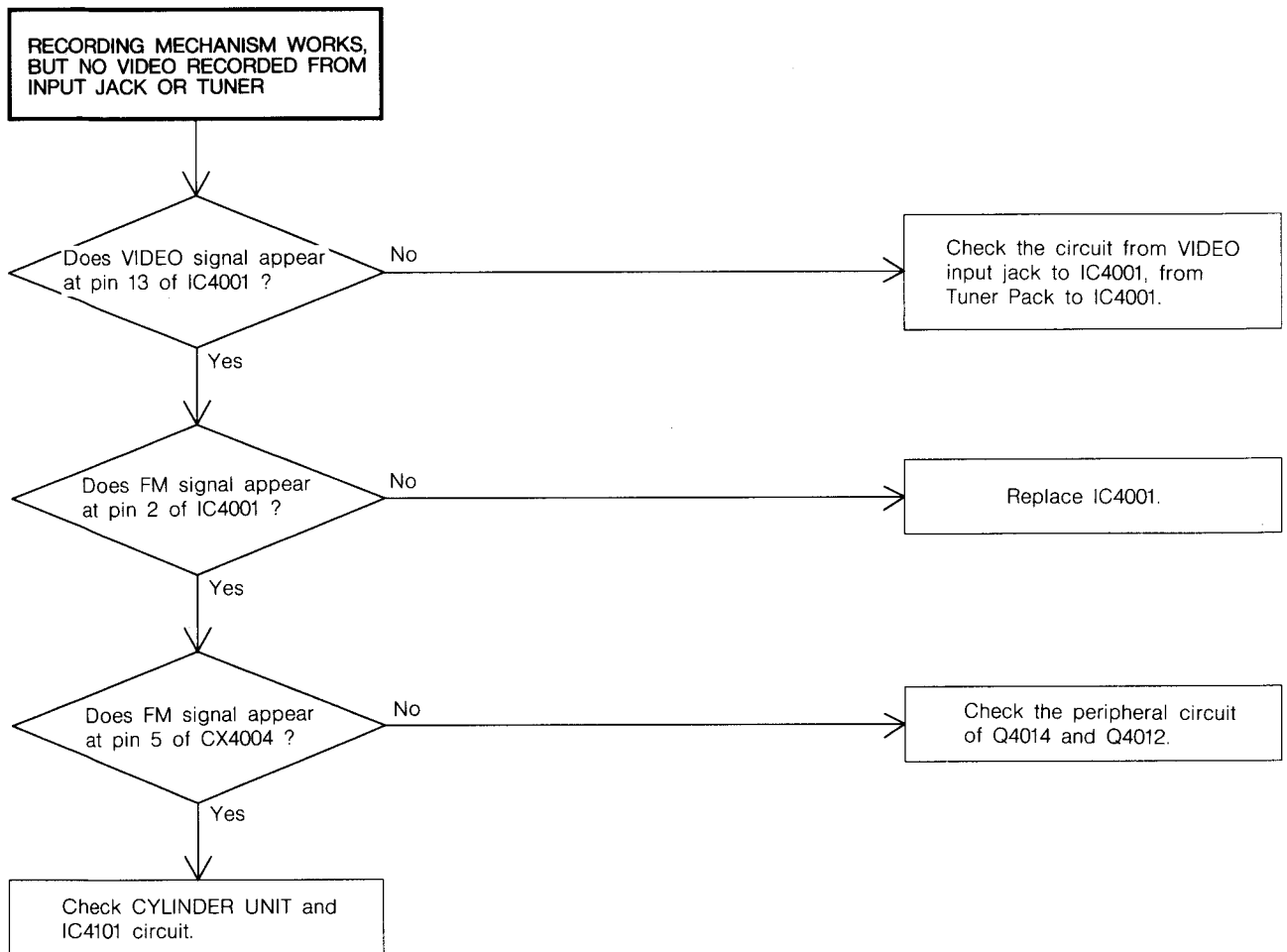
TROUBLESHOOTING GUIDE



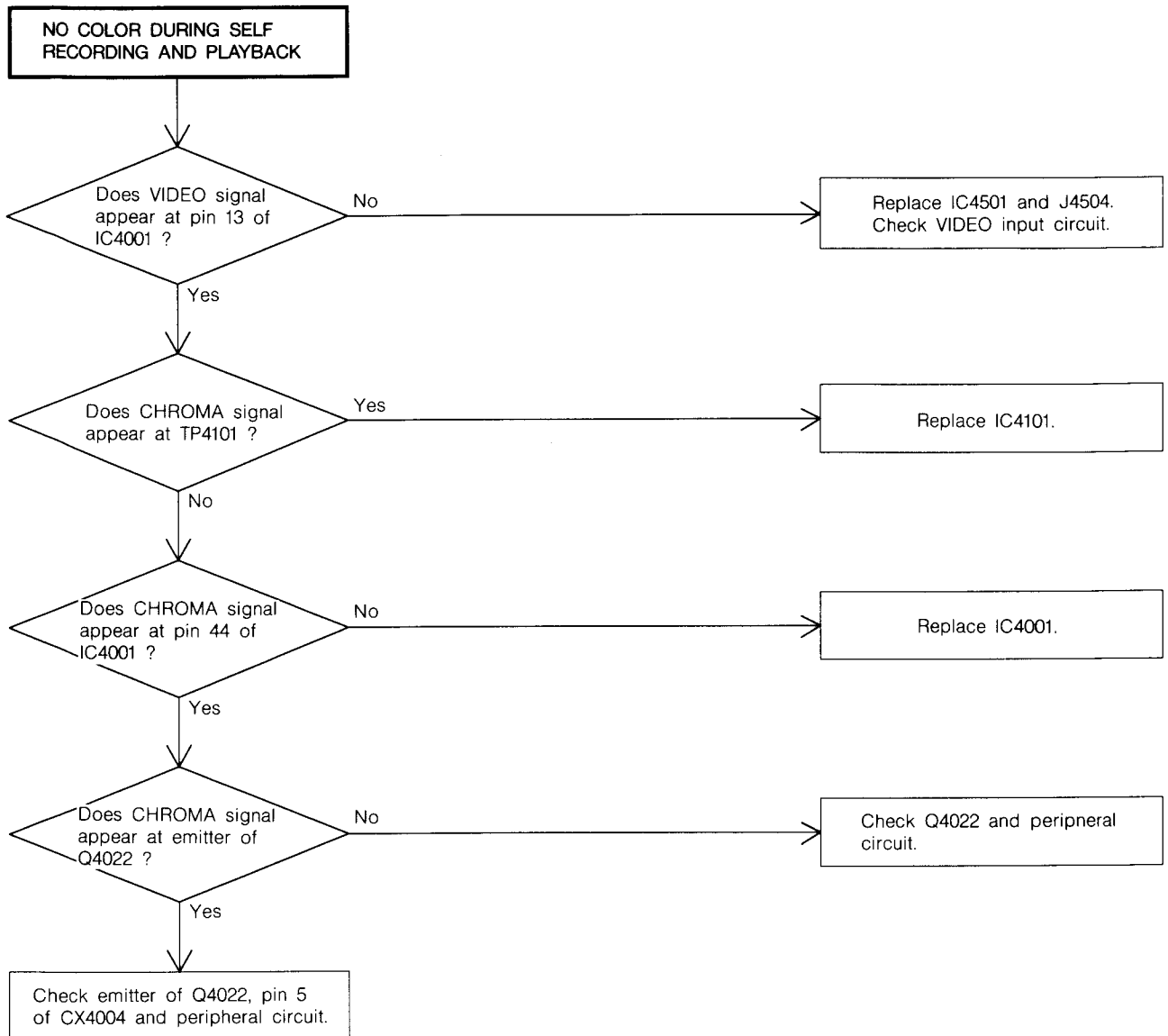
TROUBLESHOOTING GUIDE



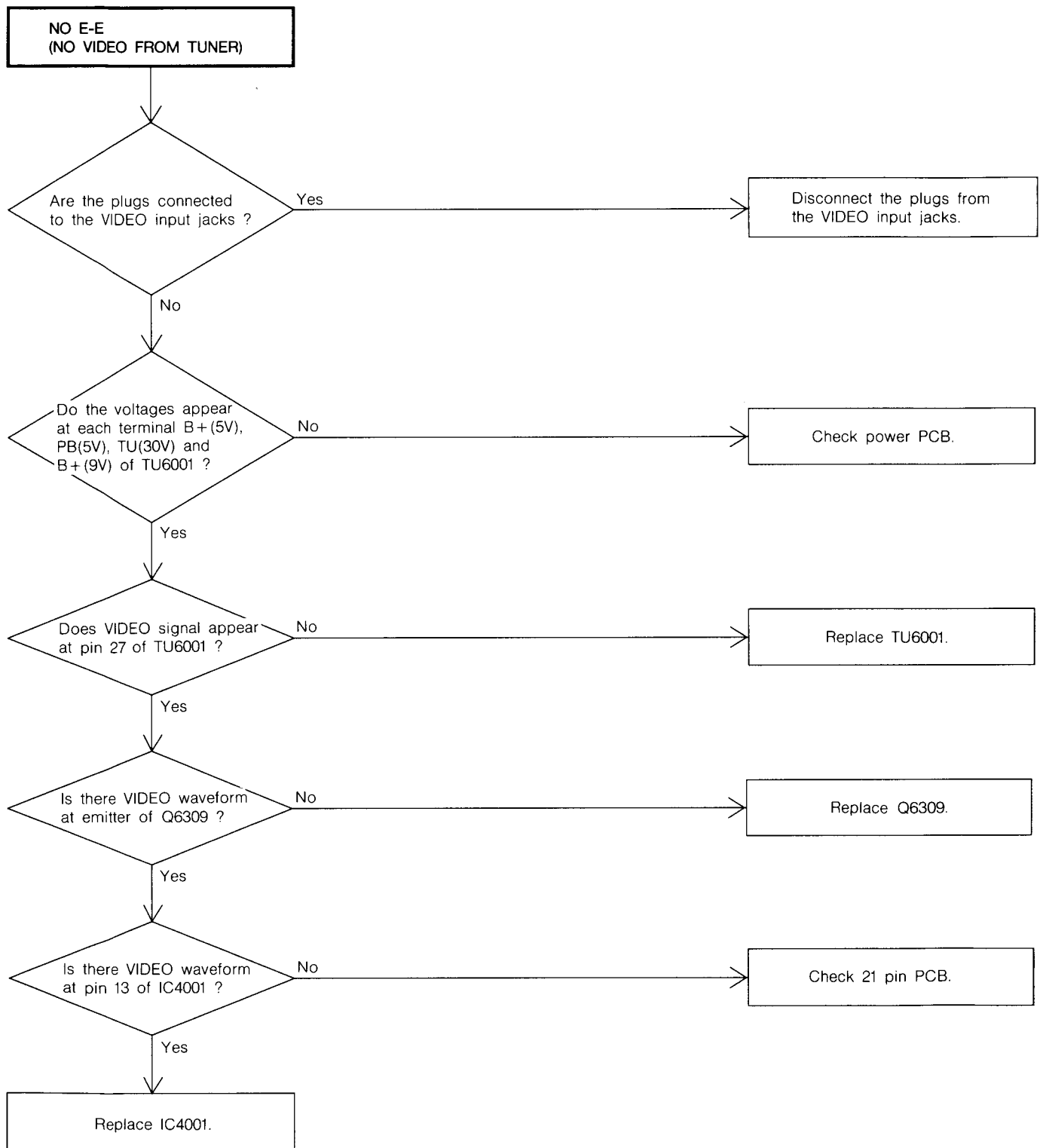
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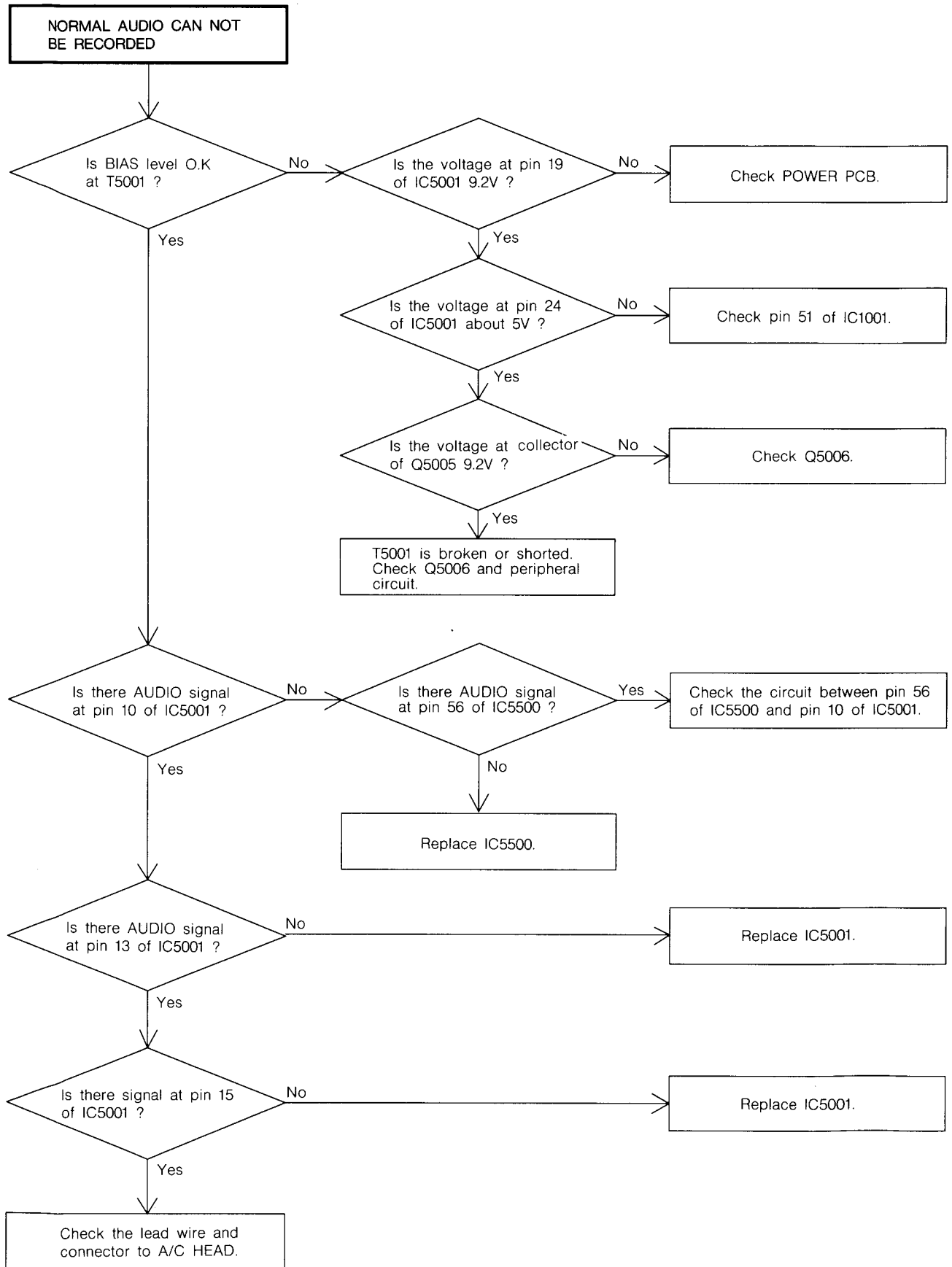
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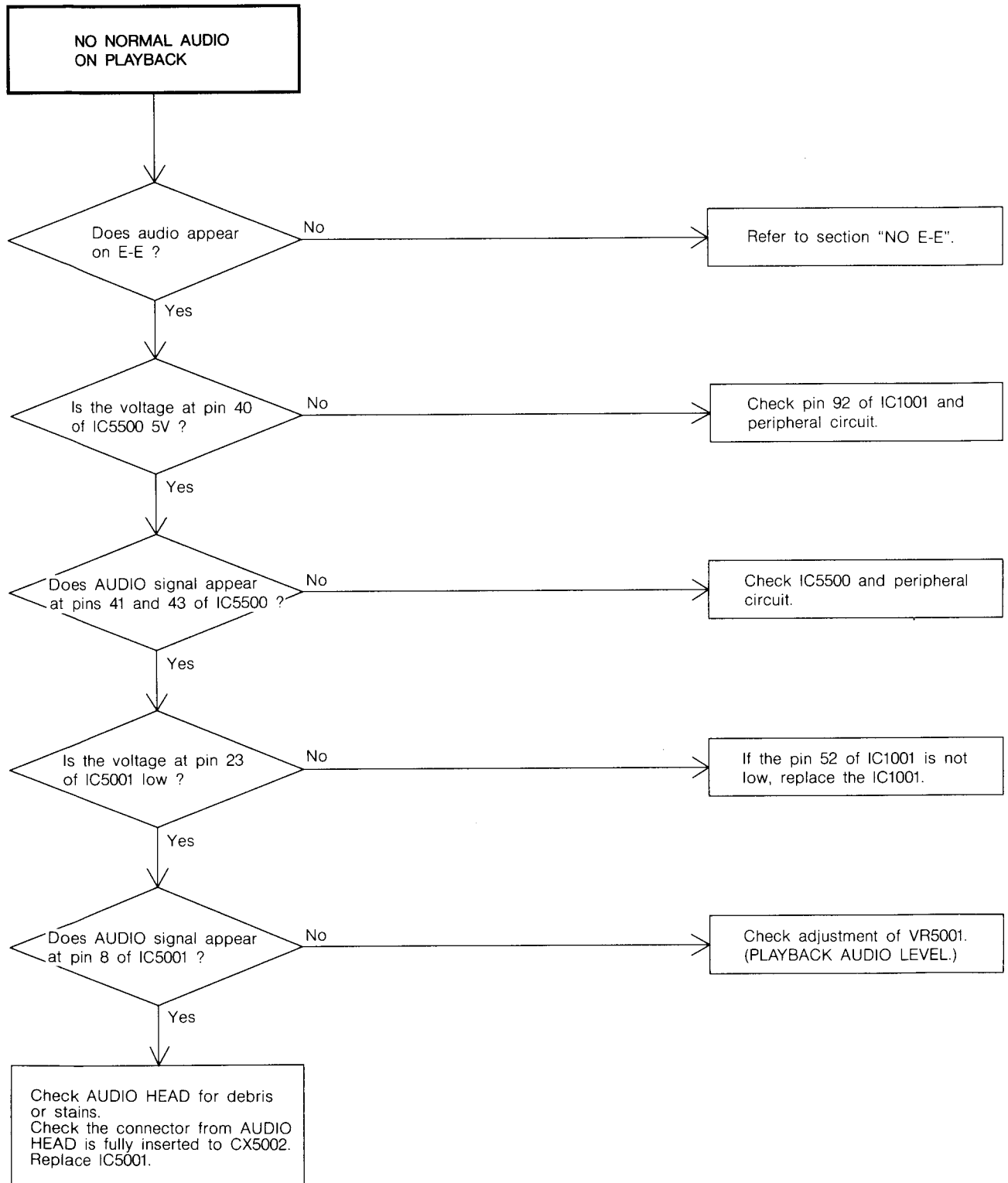
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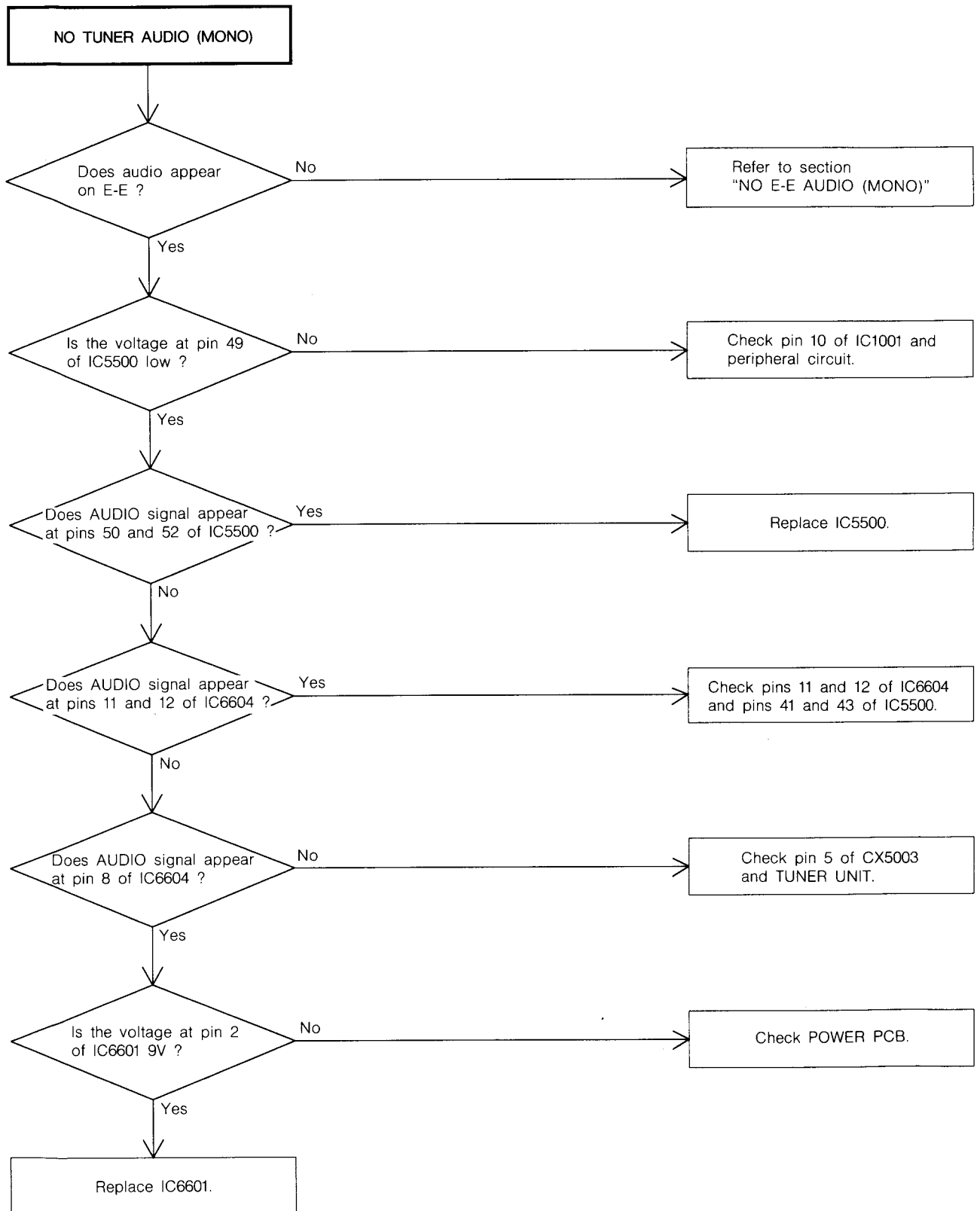
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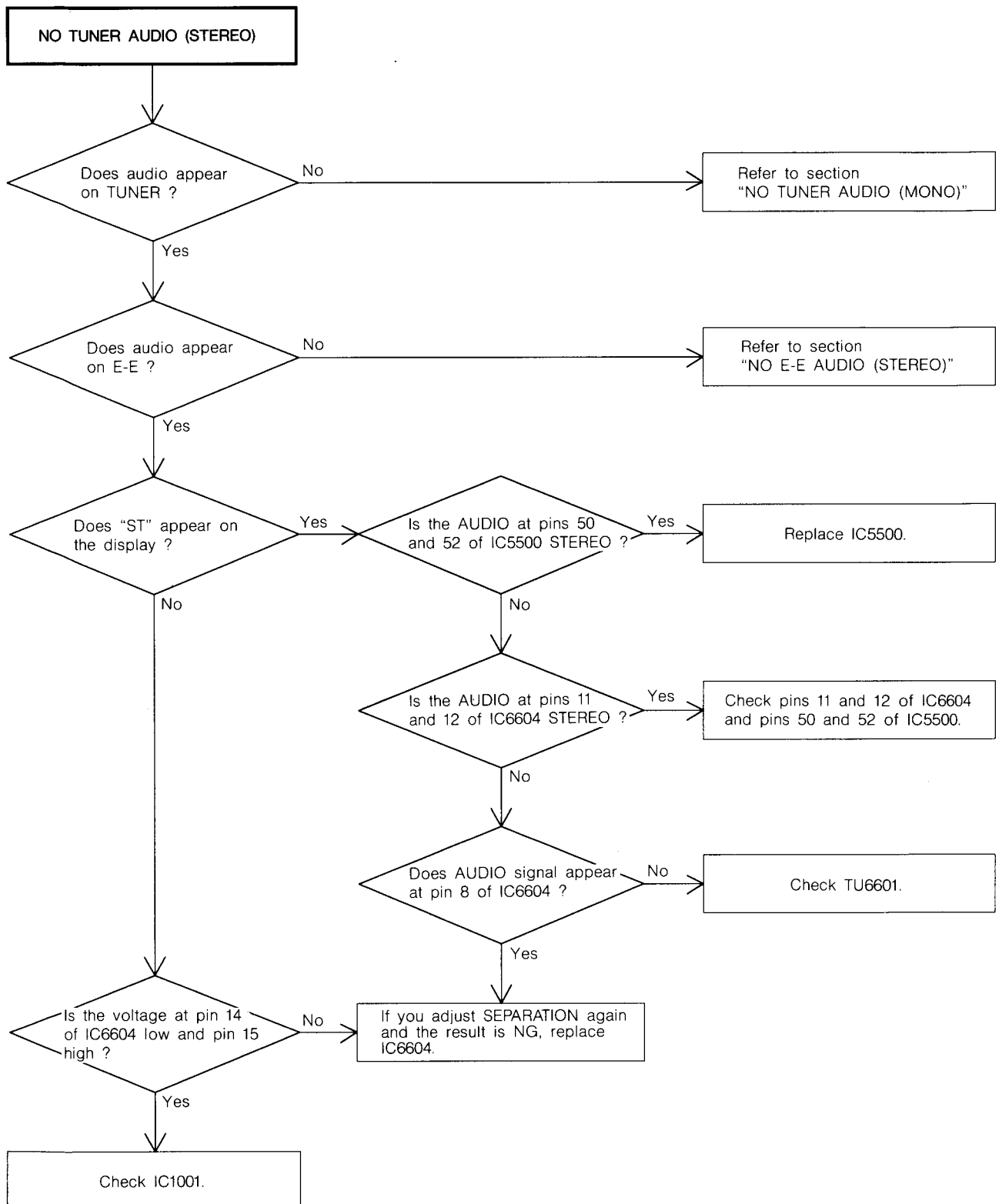
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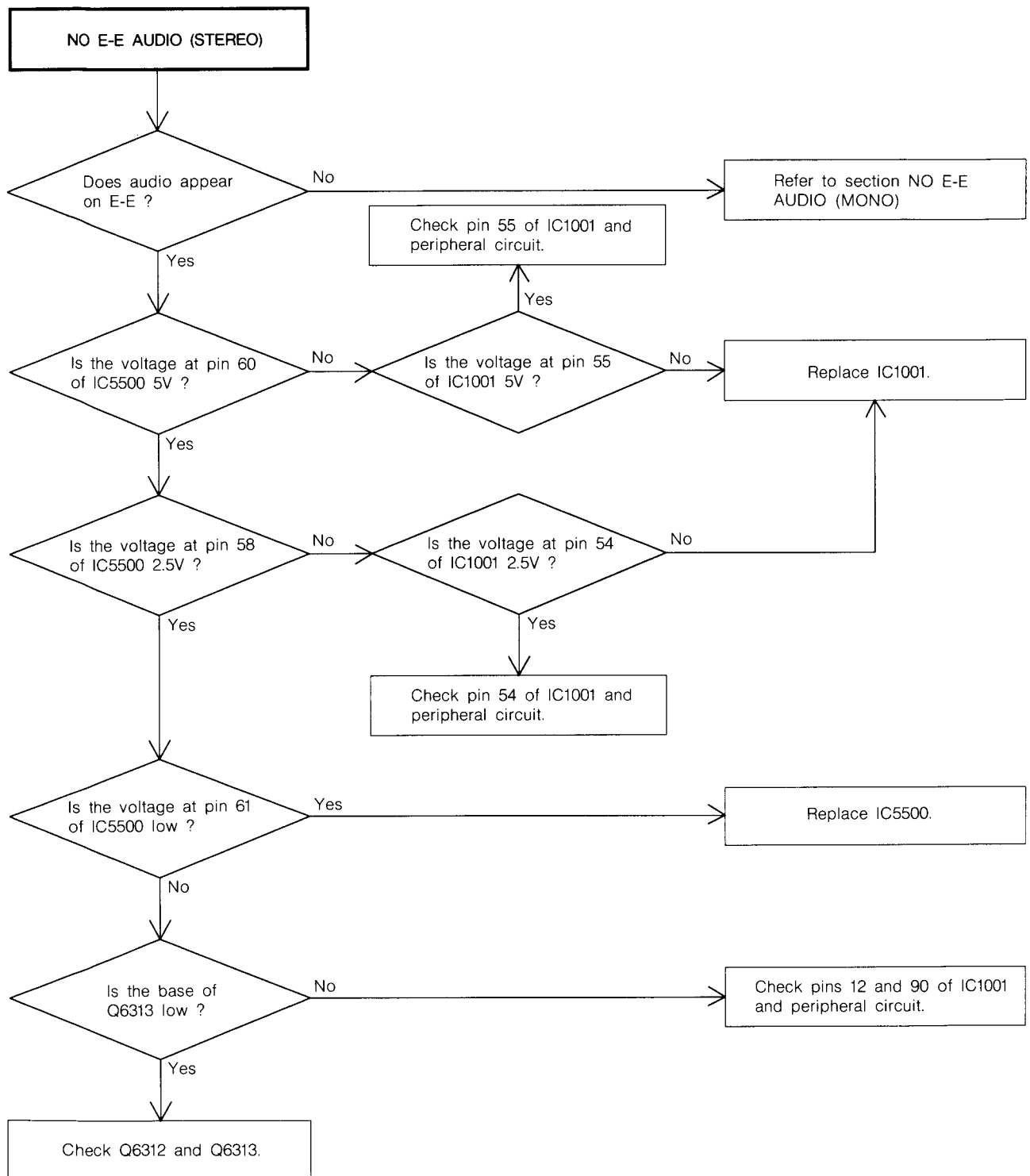
TROUBLESHOOTING GUIDE



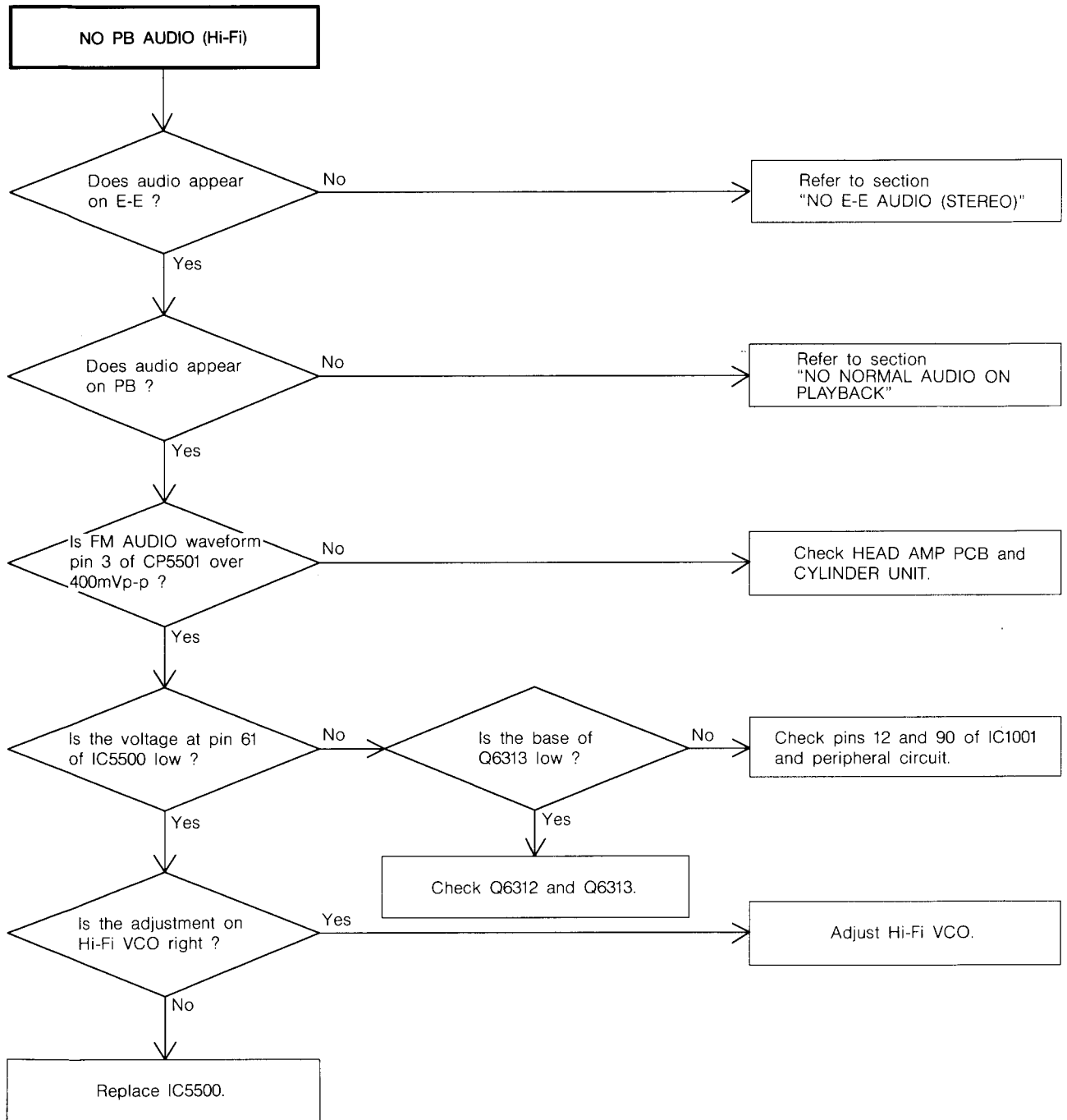
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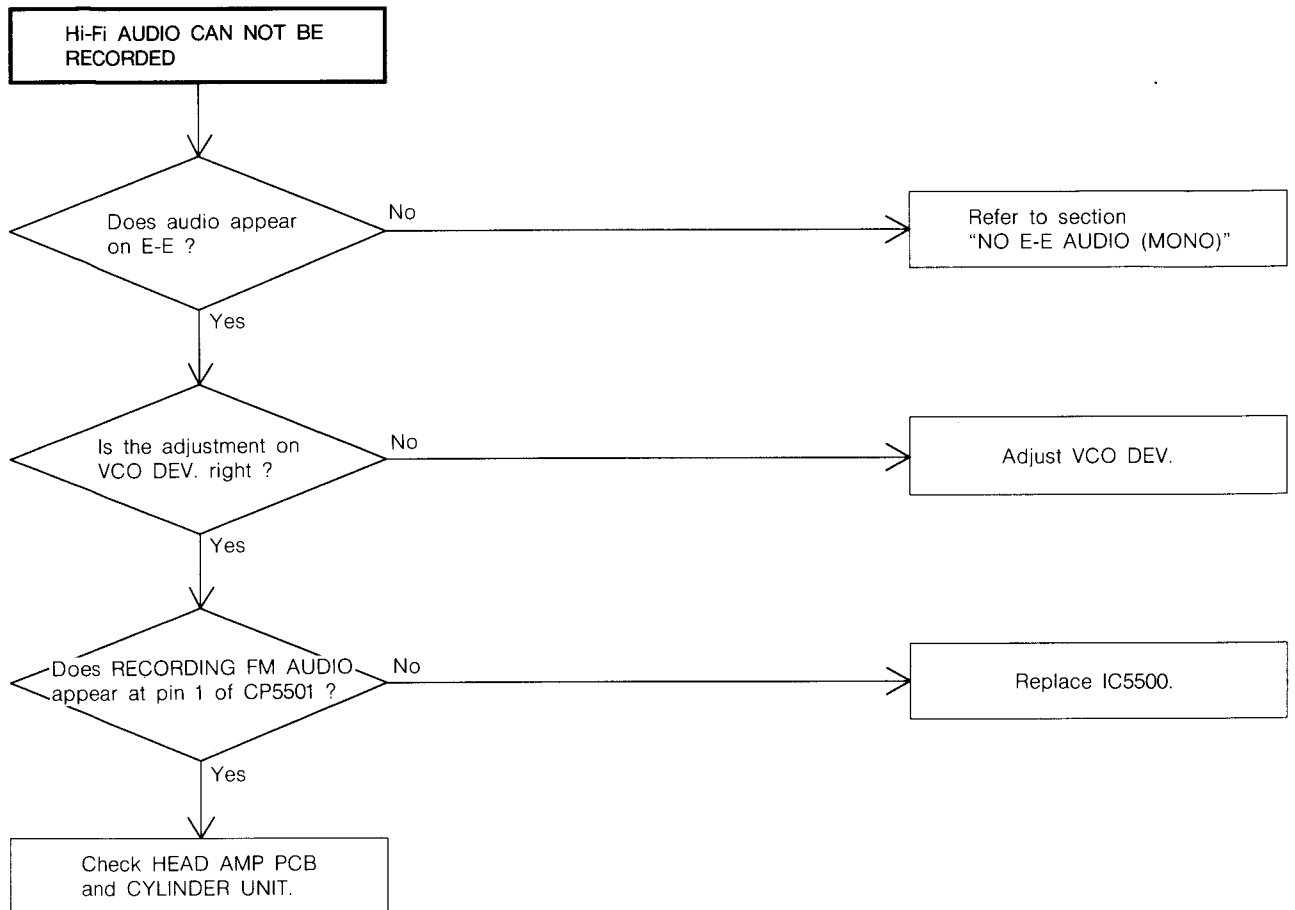
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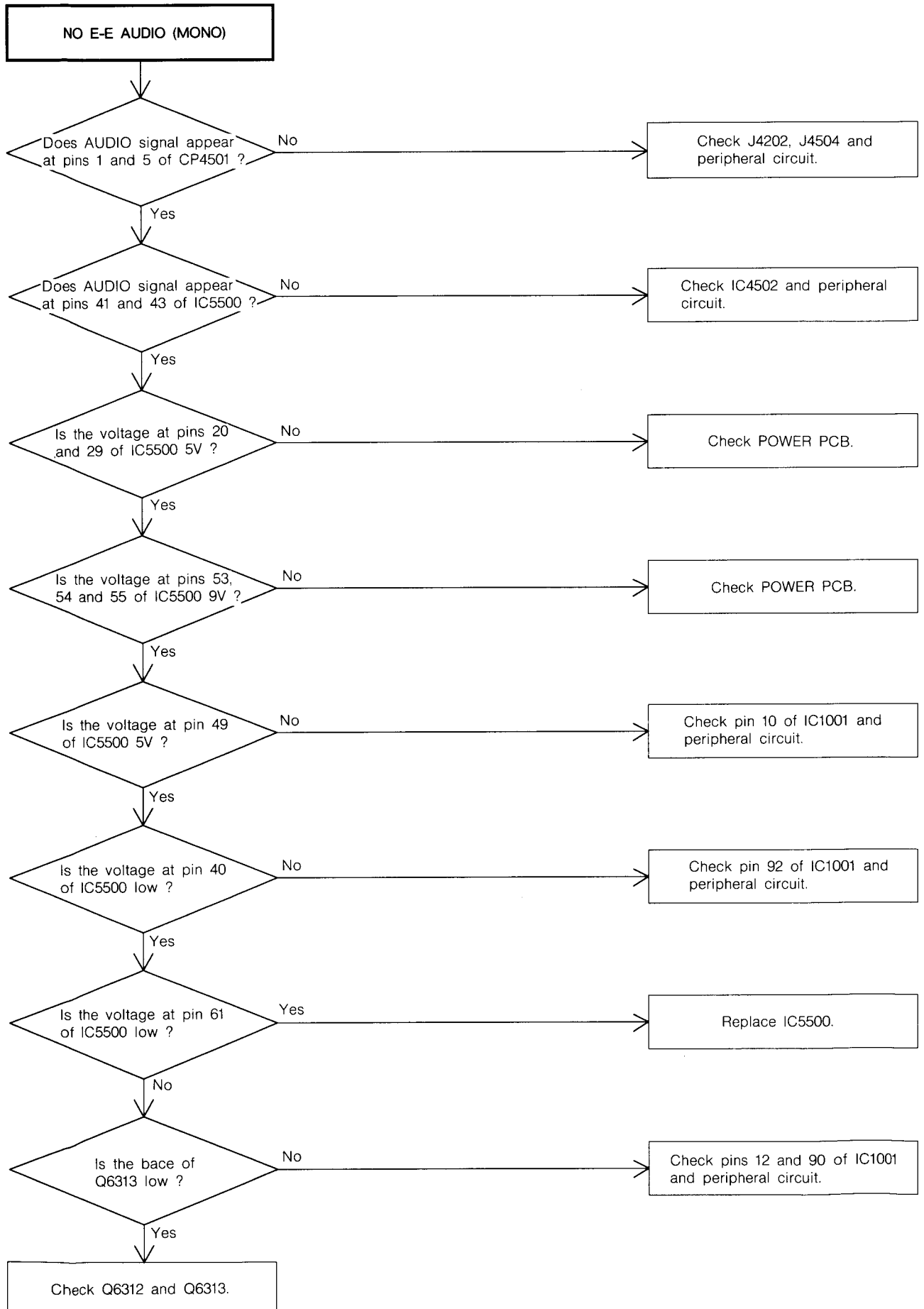
TROUBLESHOOTING GUIDE



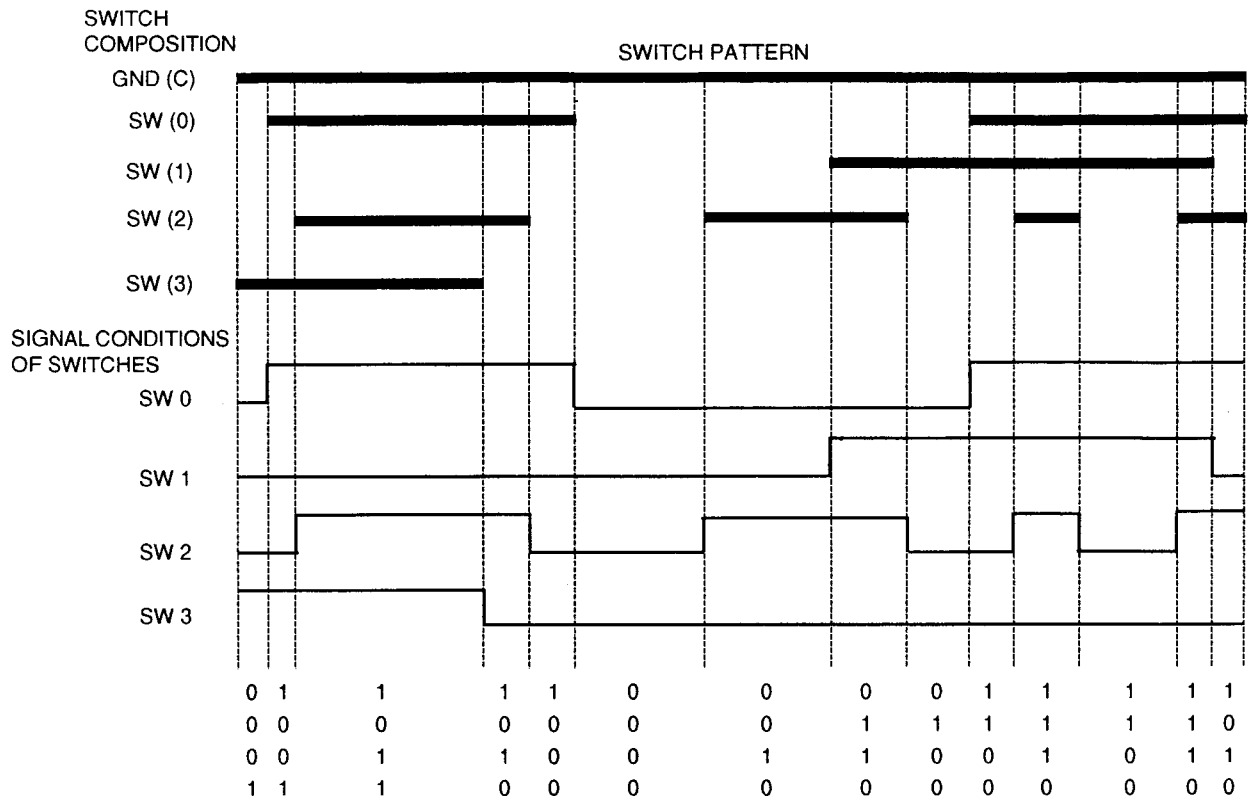
TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



SYSTEM SWITCH MODE



SW102				DECK MODE
SW 3	SW 2	SW 1	SW 0	
1	0	0	0	EJECT
1	0	0	1	CASSETTE UP
1	1	0	1	CASSETTE DOWN
0	1	0	1	RETURN 1
0	0	0	1	IDLE
0	0	0	0	RETURN 2
0	1	0	0	STAND BY
0	1	1	0	STILL
0	0	1	0	REC/PLAY
0	0	1	1	※
0	1	1	1	VSR
0	0	1	1	RETURN 3

SW102				DECK MODE
SW 3	SW 2	SW 1	SW 0	
0	5	5	5	EJECT
5	0	5	5	STOP
5	5	0	5	PLAY
5	5	0	5	RECORDING
5	0	5	5	FAST FORWARD
5	0	5	5	REWIND
5	5	0	5	VSR
5	0	0	0	VSR
5	0	0	5	PAUSE/STILL (PLAY)
5	5	0	5	PAUSE/STILL (REC)
5	5	5	0	POWER OFF (TAPE IN)

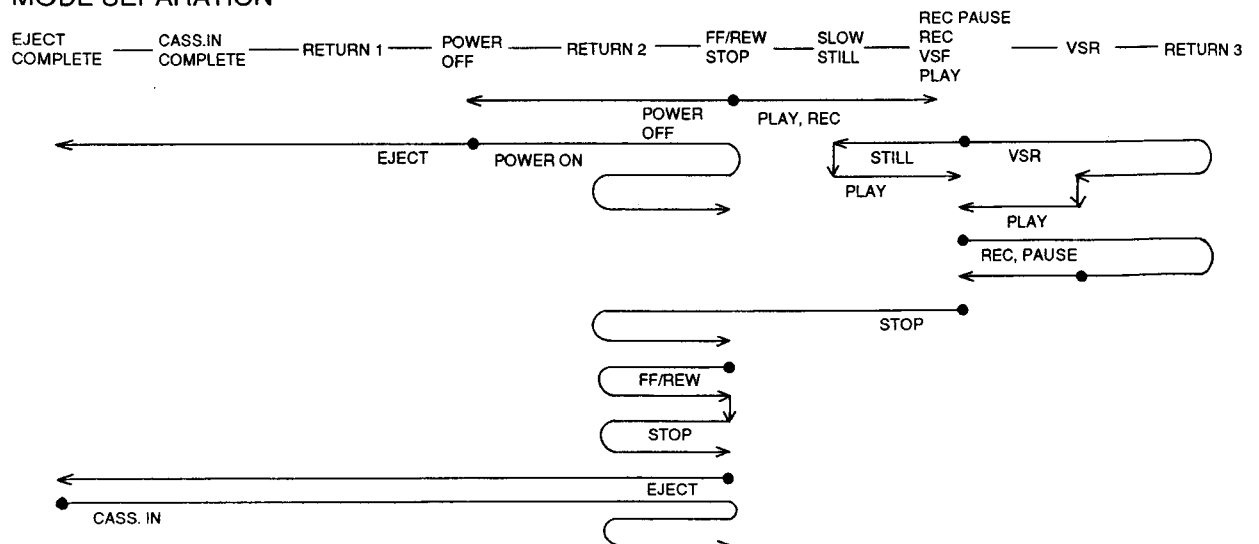
VOLTAGE (V)

OUTPUT LIST OF THE MECHANICAL SWITCHES

(1 : SW ON)

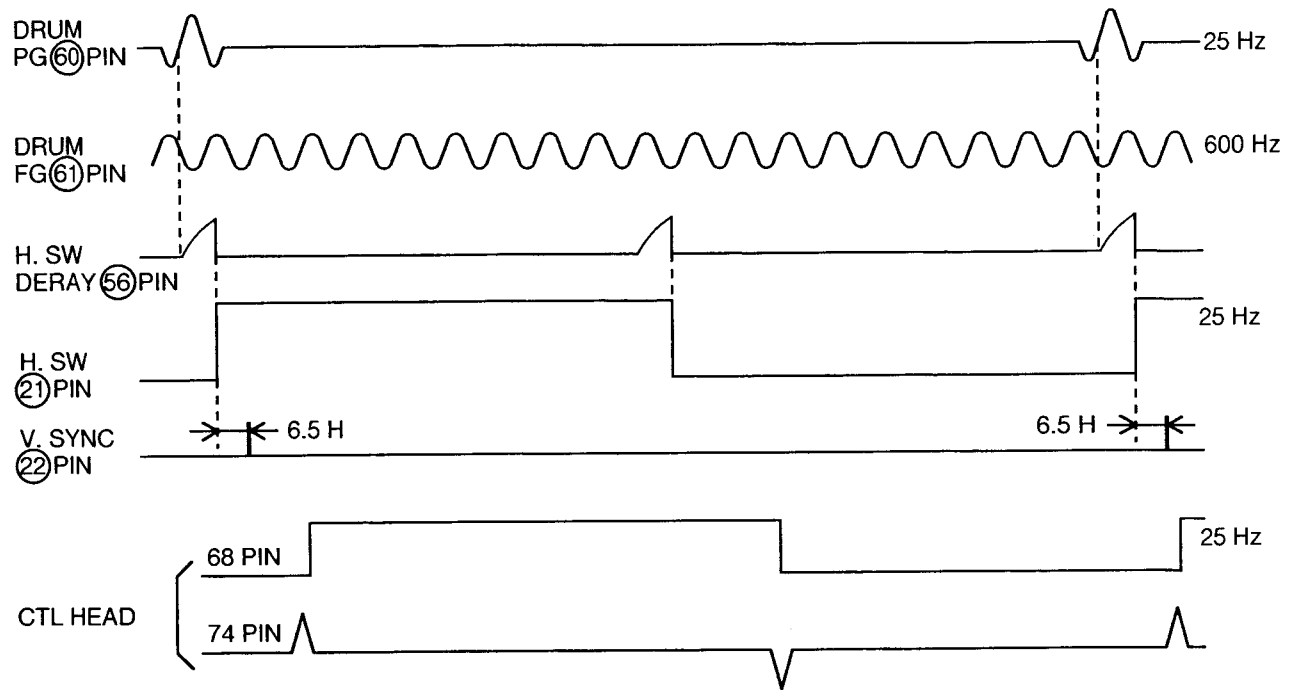
※ : IT IS ONLY PASSED POINT. THERE IS NO DECK MODE.

MODE SEPARATION



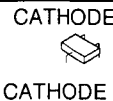
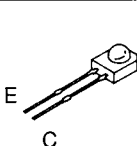
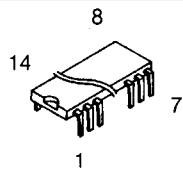
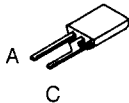
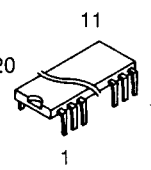
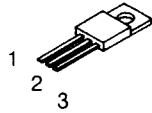
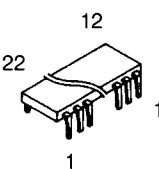
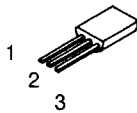
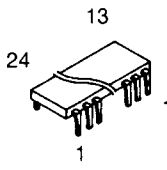
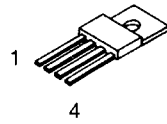
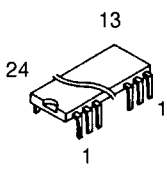
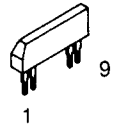
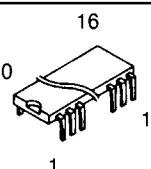
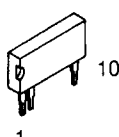
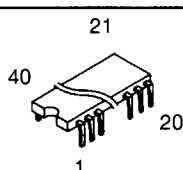
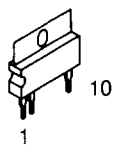
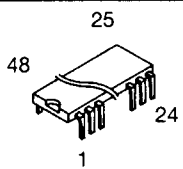
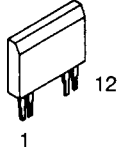
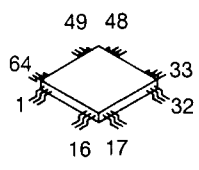
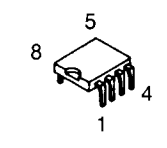
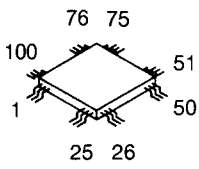
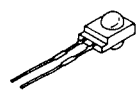
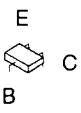
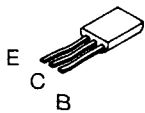
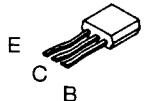
SERVO TIMING CHART

IC1001(OEC8061A)

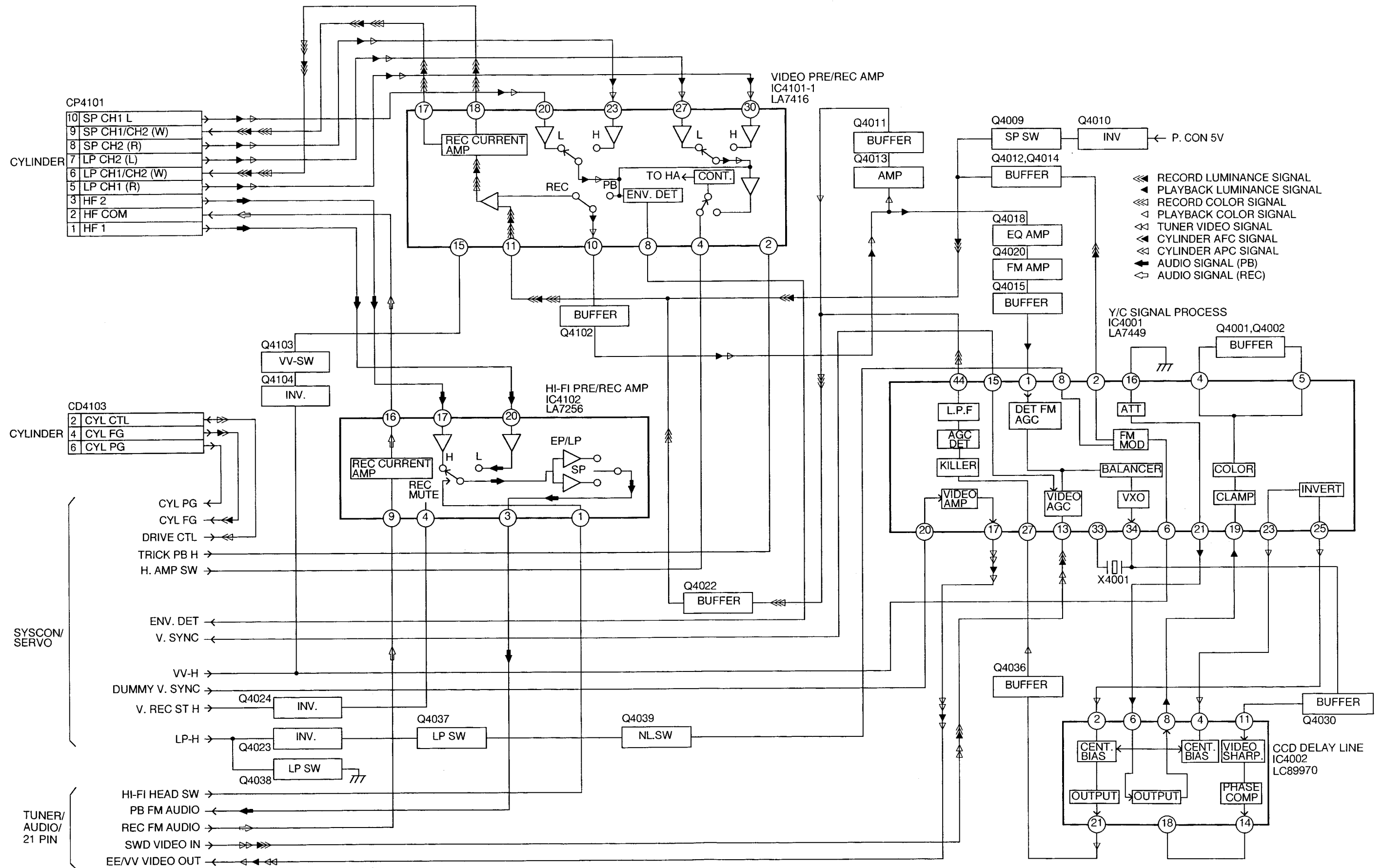


※ WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED

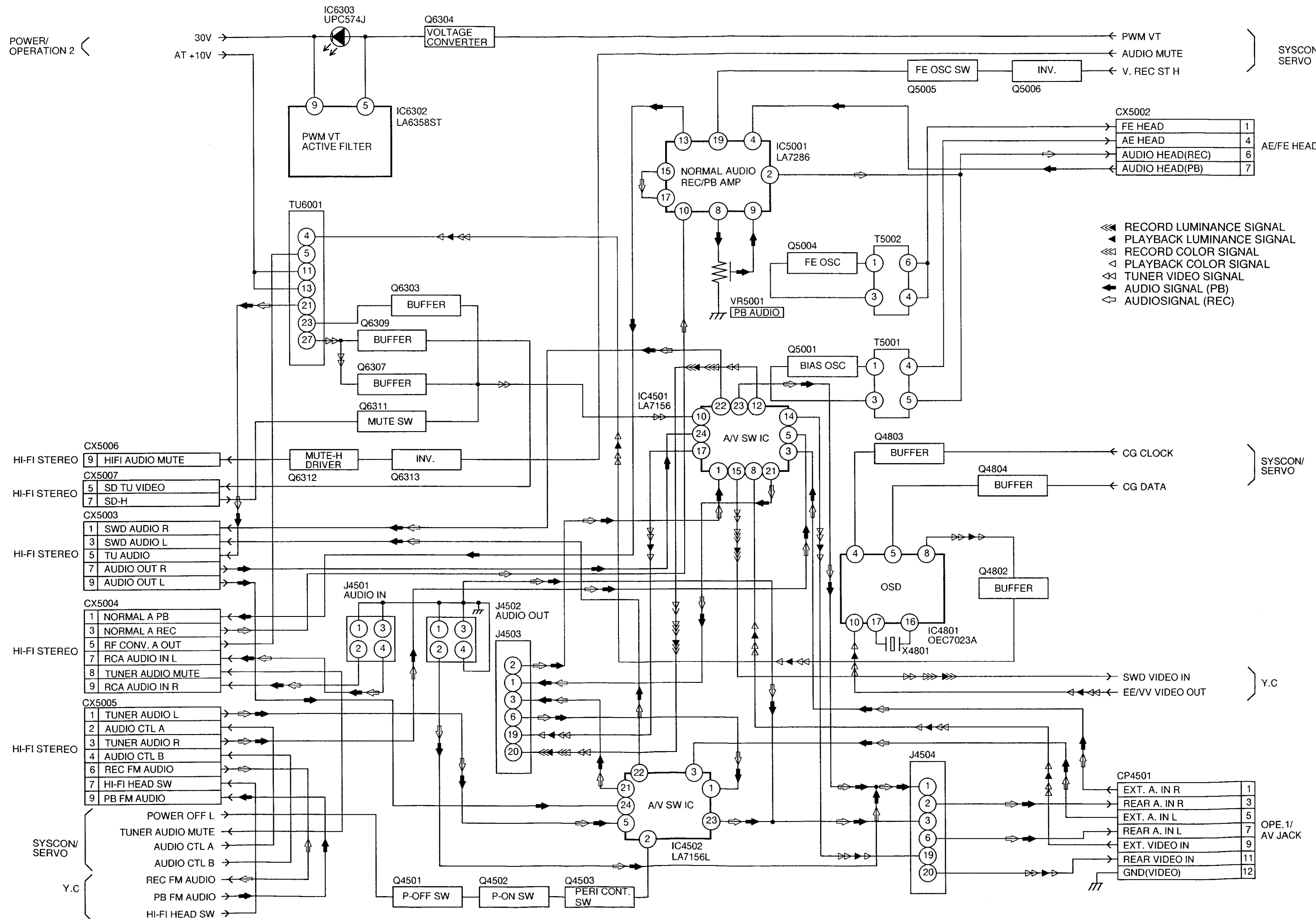
SEMICONDUCTOR BASE CONNECTIONS

ILLUSTRATION	DESCRIPTION	ILLUSTRATION	DESCRIPTION	ILLUSTRATION	DESCRIPTION
	DA204KT		PT-304R2L		SDA5649
	LFB-01L		UPC574J		OEC7023A
	1SS132 MTZJ6.8B MTZJ6.2C MTZJ9.1A MTZJ13C MTZJ15 MTZJ15B MTZJ15C LTZ-MR15 RB721Q		TA7810S		LC89970
	GZB30B 1SS198TE 1S2472		PST600H		LA7156 LA7156L LA7256 LA7286
	11E1TA1 11E2TA1		PQ30RV21 PQ05RF21		LA7416
	DSA12TB		LA6358ST LA7910		MN12510
	DSA26C		LA7210		TDA9845
	SB10-03A3		BA6886		LA7449
	EM-553		TA8721ASN		LA7252M
	LN81RCPH		AN6564		OEC8061A
	LN59LMI				
	DTA114EKT DTC114EKT DTA124EKT 2SA1037KT DTC124EKT 2SC2412KT 2SC3734				
	2SA984K 2SB698 2SB926 2SC1317 2SD1111				
	2SC1740SP DTC124ES				

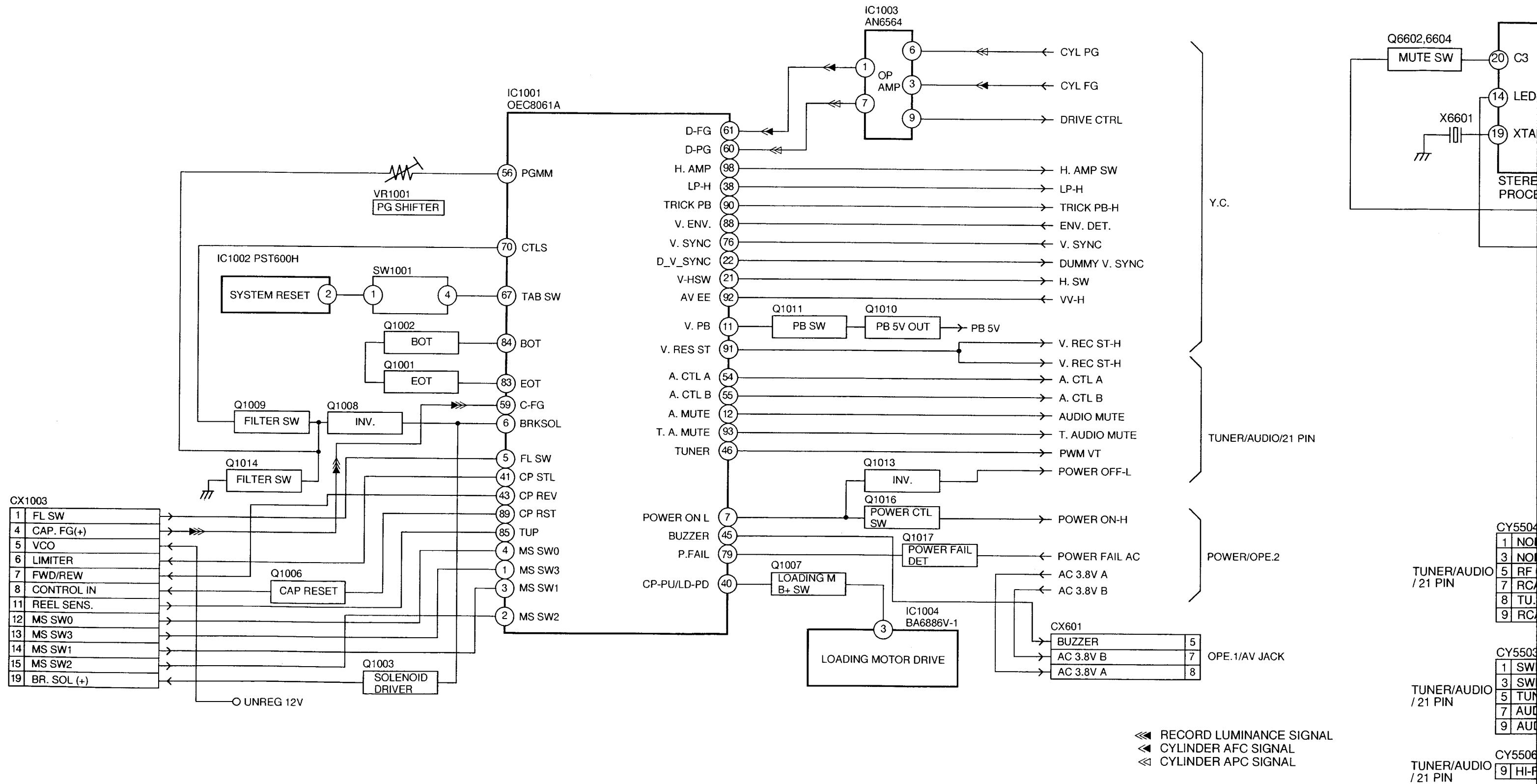
Y.C./HEAD AMP BLOCK DIAGRAM



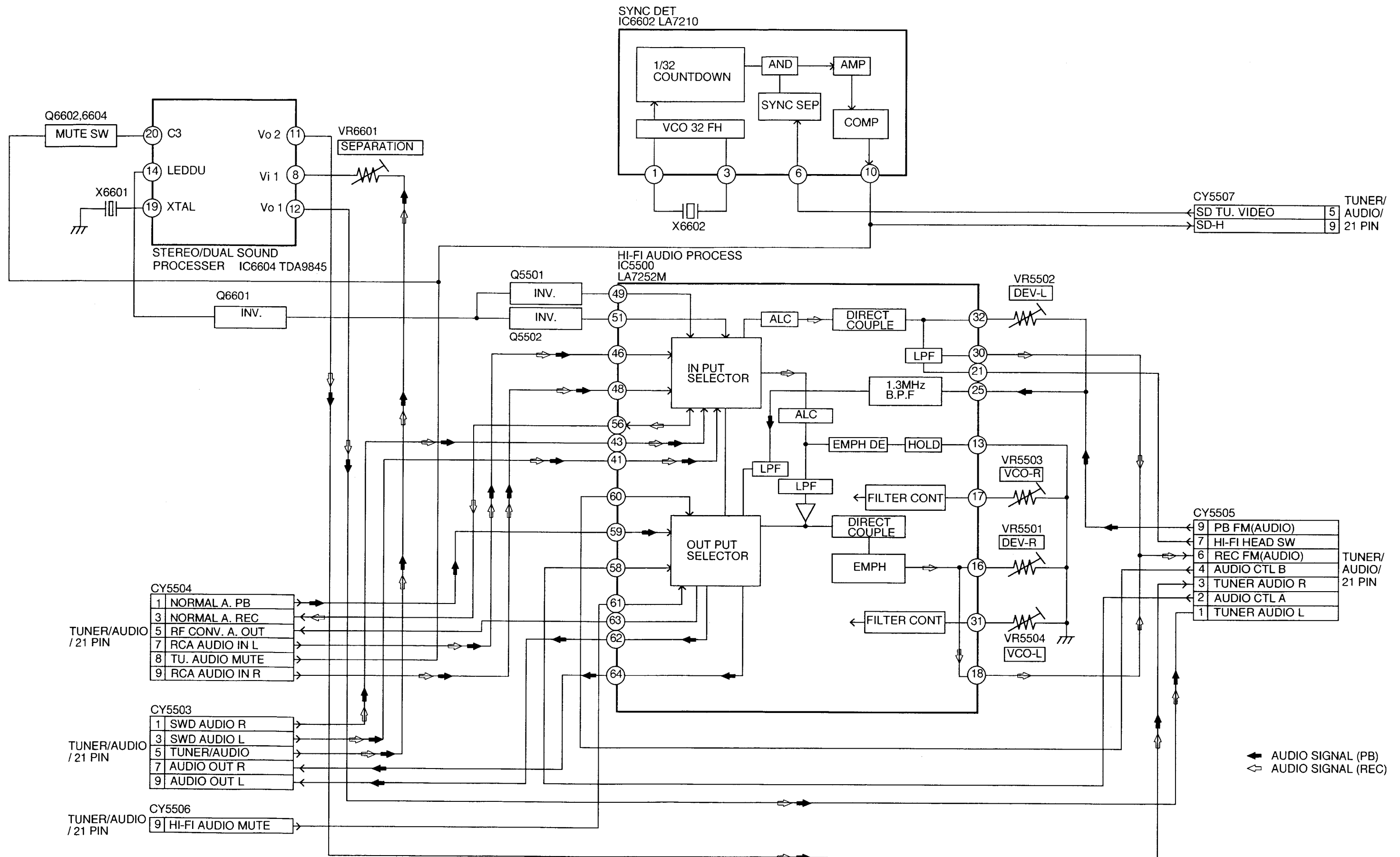
TUNER/AUDIO 21PIN BLOCK DIAGRAM



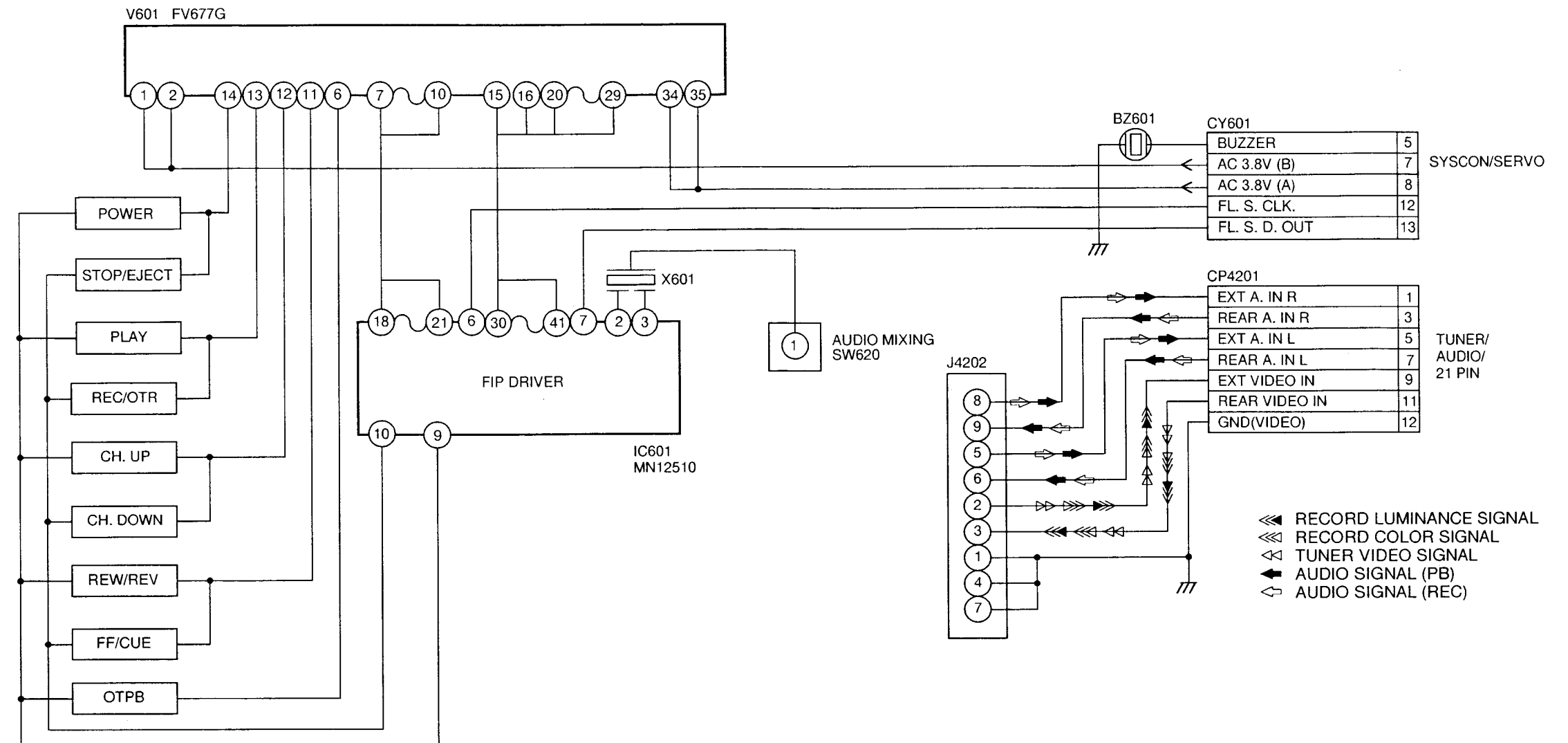
SYSTEM CONTROL/SERVO BLOCK DIAGRAM



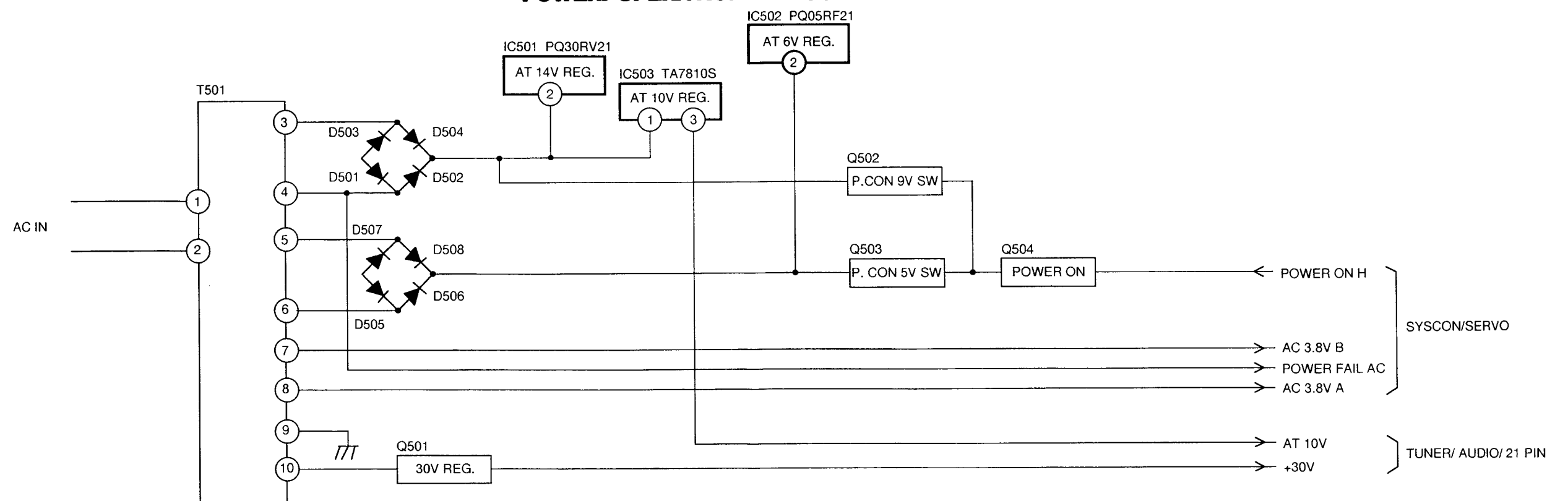
HI-FI/STEREO DEMODULATOR BLOCK DIAGRAM



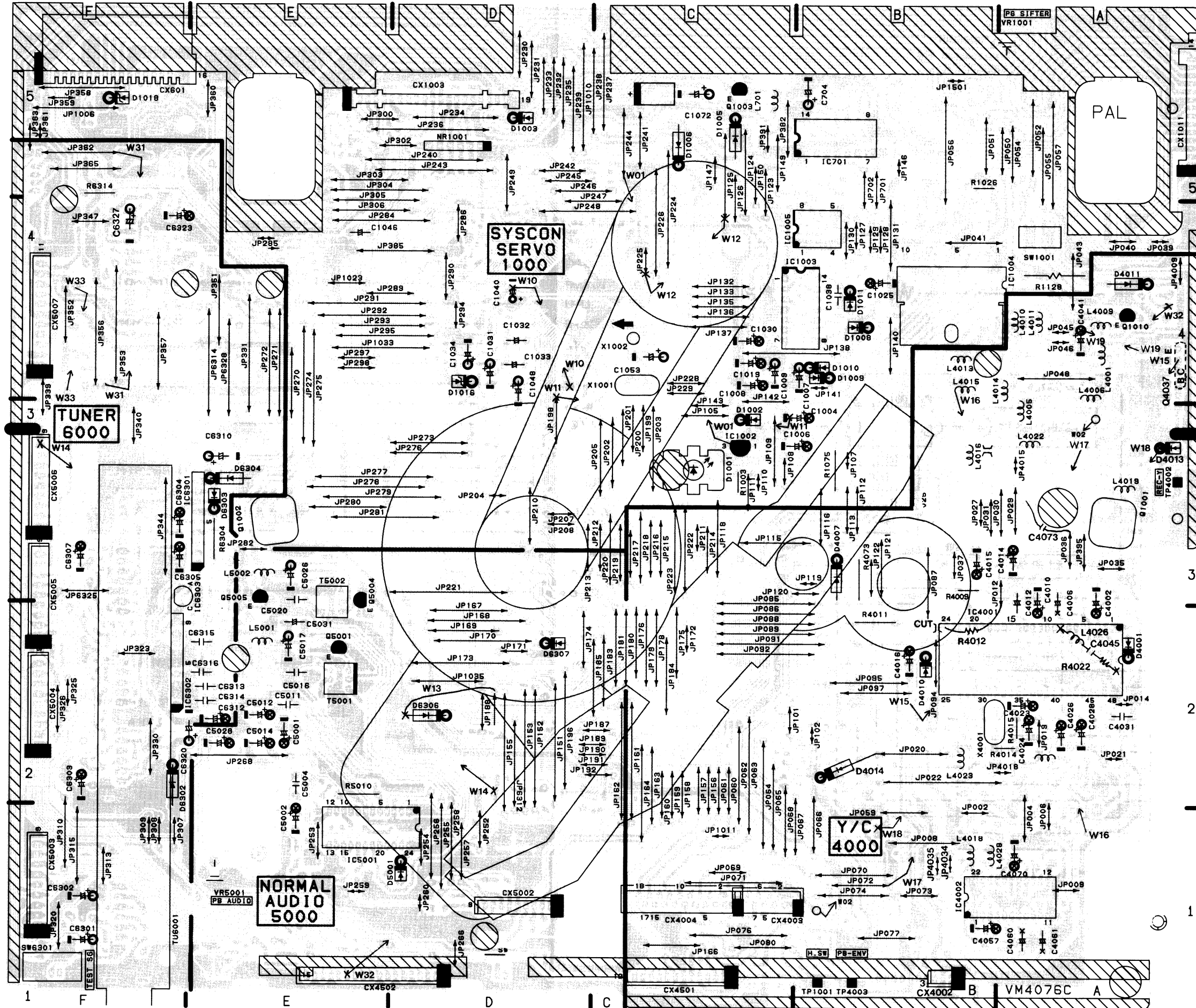
OPERATION 1/A/V JACK BLOCK DIAGRAM



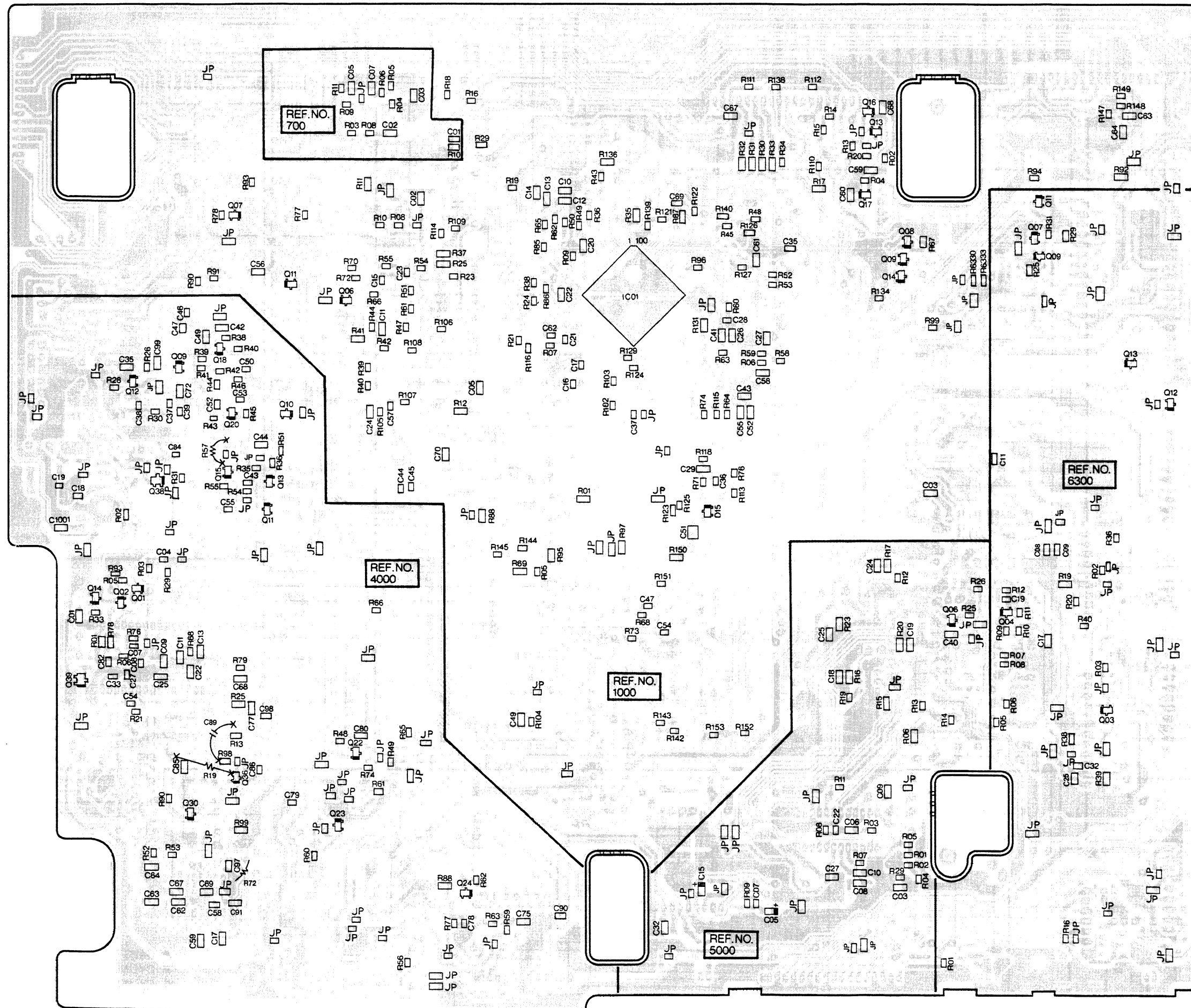
POWER/OPERATION 2 BLOCK DIAGRAM



COMPONENT SIDE



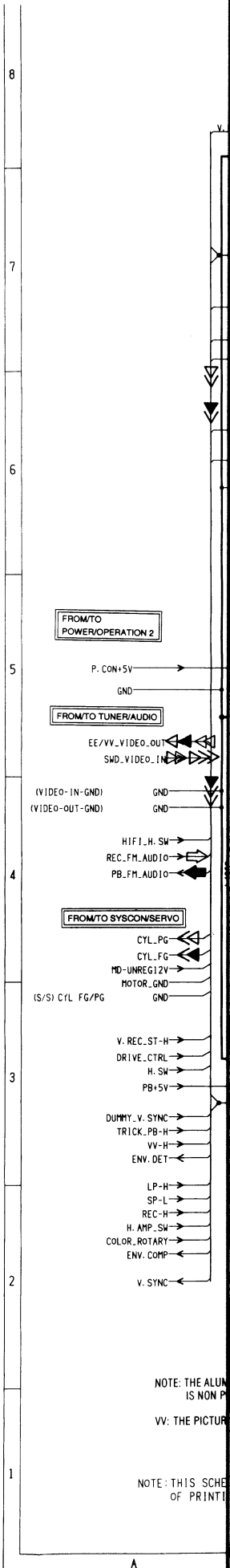
PRINTED CIRCUIT BOARDS **MAIN** **SOLDER SIDE**



Reference Number Abbreviation

1. Reference numbers of two and three digits are abbreviations of four digits.
2. Each block has its own Reference number series which is shown in each block.
3. Each block is separated by border line.
4. If there is a four digit Reference number shown in another series block, treat it as original block's part.
5. This rule is not applied to jumper wires.

JP JUMPER



(MAIN PCB)



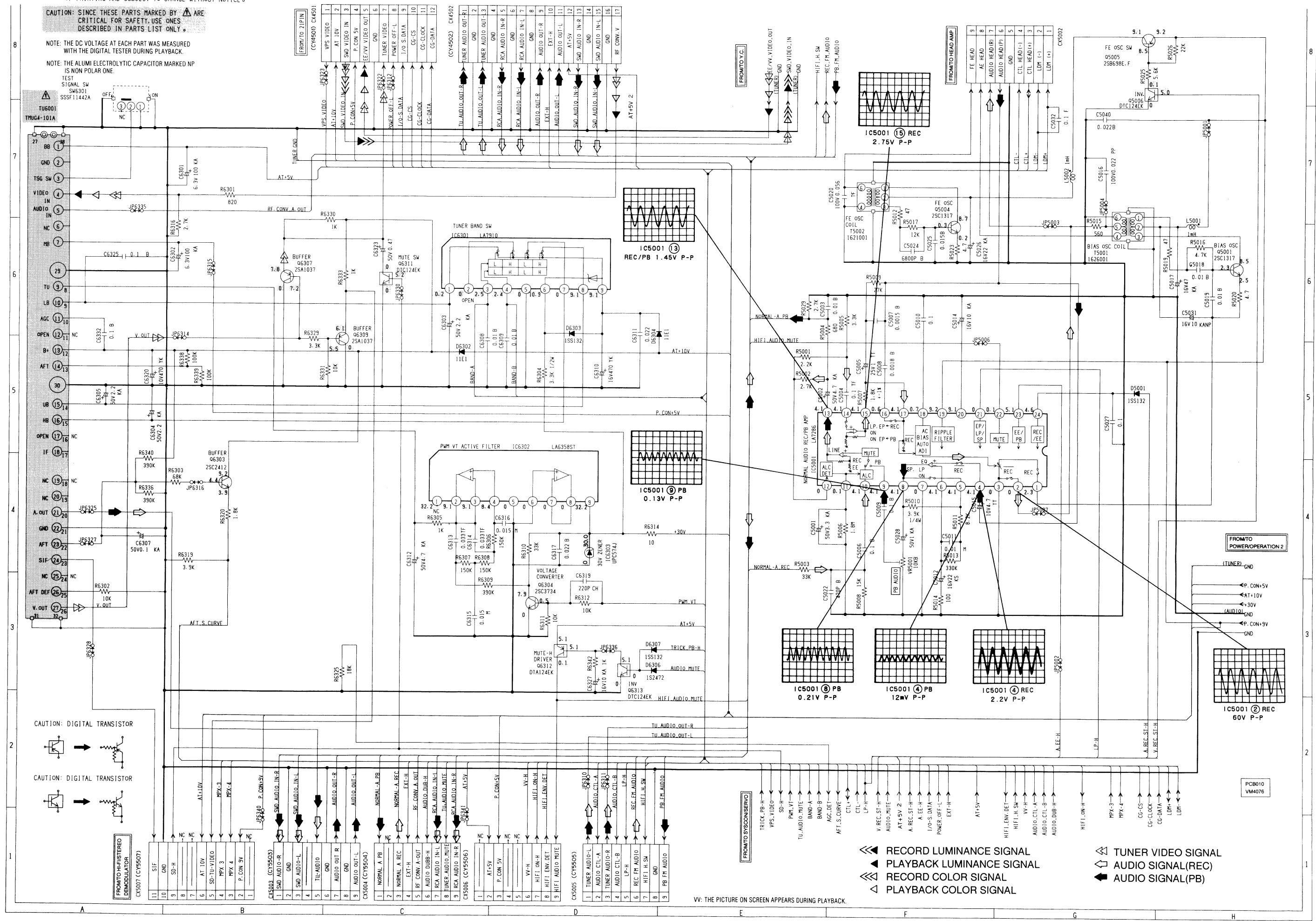
TUNER/AUDIO SCHEMATIC DIAGRAM (MAIN PCB)

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

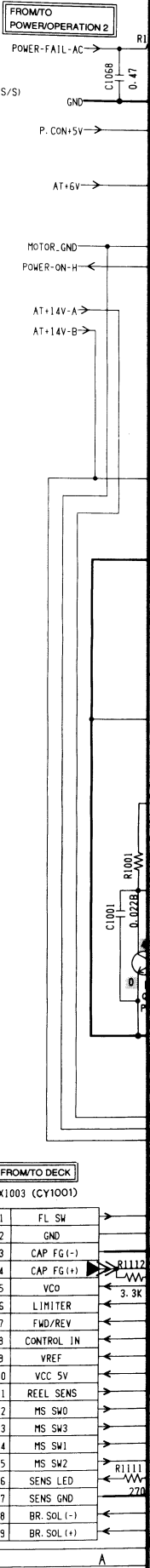
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.



NOTE: THIS IN OF PRIN
CAUTION: SIN
CRIT
DESO



- ◀ RECORD LUMINANCE SIGNAL
- ▶ PLAYBACK LUMINANCE SIGNAL
- ◀ RECORD COLOR SIGNAL
- ▶ PLAYBACK COLOR SIGNAL
- ◀ TUNER VIDEO SIGNAL
- ▶ AUDIO SIGNAL(REC)
- ▶ AUDIO SIGNAL(PB)

VV: THE PICTURE ON SCREEN APPEARS DURING PLAYBACK.

SYSTEM CONTROL/SERVO SCHEMATIC DIAGRAM

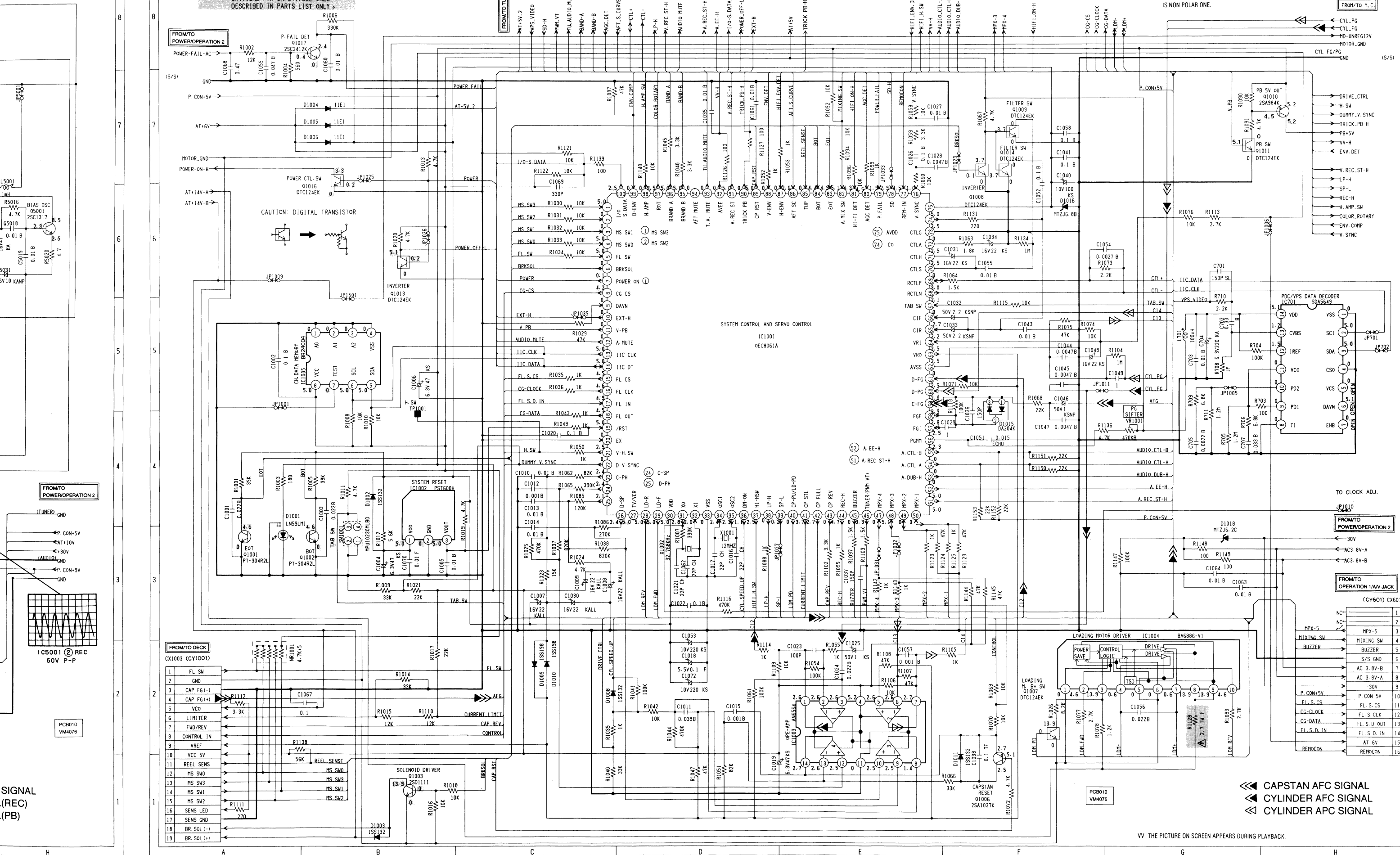
(MAIN PCB)

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

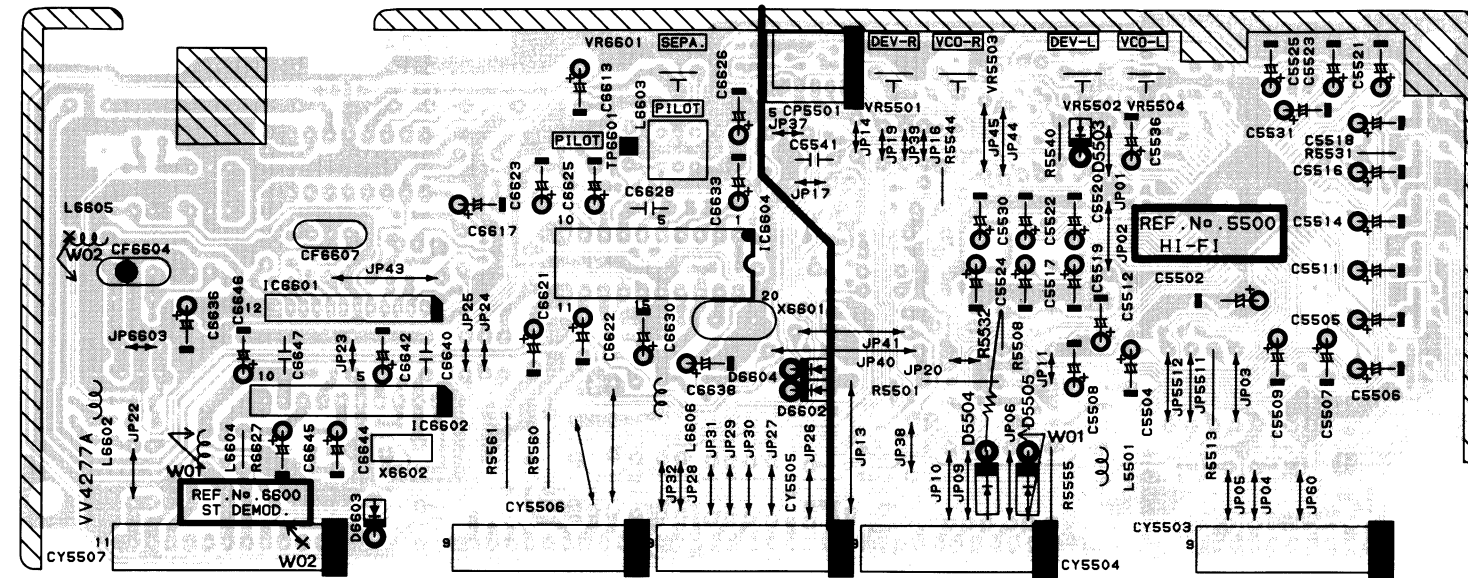


 CAPSTAN AFC SIGNAL
 CYLINDER AFC SIGNAL
 CYLINDER APC SIGNAL

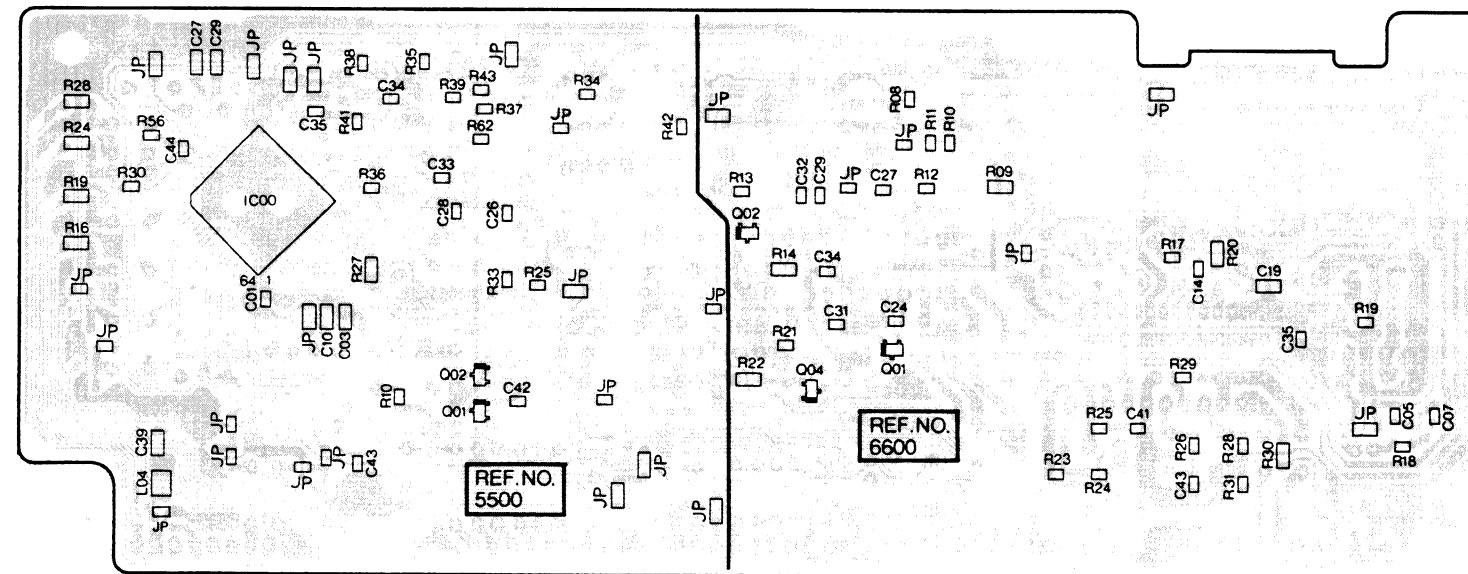
VV: THE PICTURE ON SCREEN APPEARS DURING PLAYBACK.

PRINTED CIRCUIT BOARDS

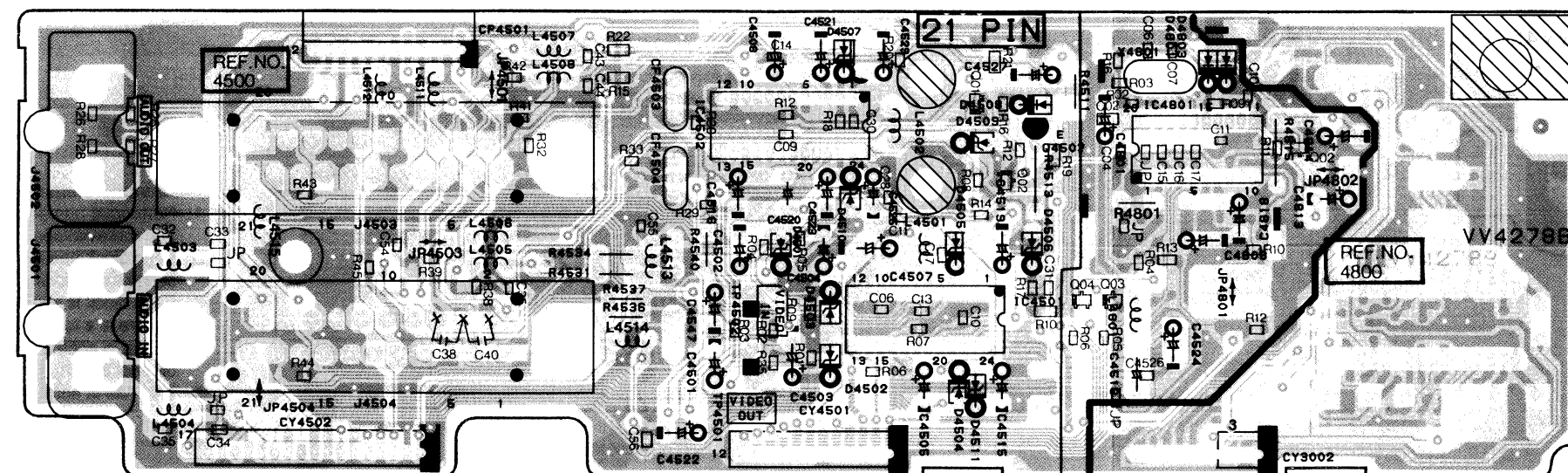
HI-FI COMPONENT SIDE



SOLDER SIDE



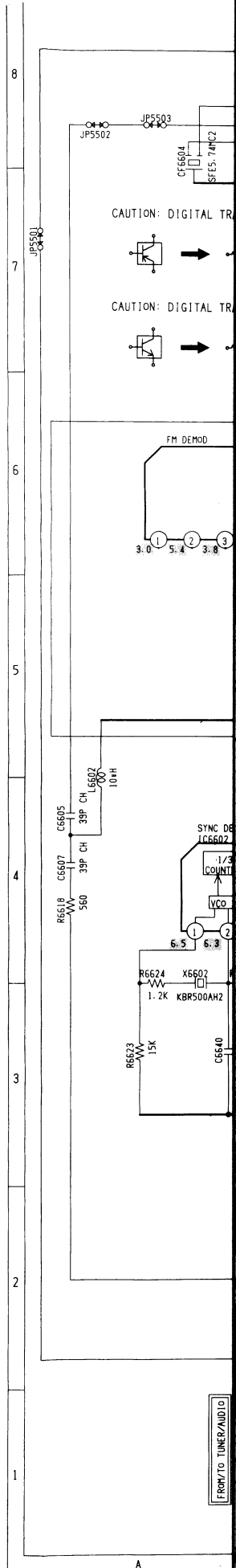
21PIN



Reference Number Abbreviation

1. Reference numbers of two and three digits are abbreviations of four digits.
2. Each block has its own Reference number series which is shown in each block.
3. Each block is separated by border line.
4. If there is a four digit Reference number shown in another series block, treat it as original block's part.
5. This rule is not applied to jumper wires.

JP JUMPER

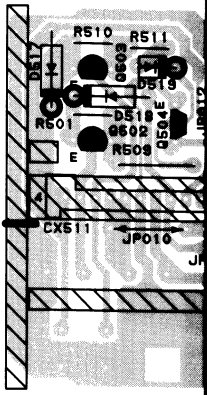
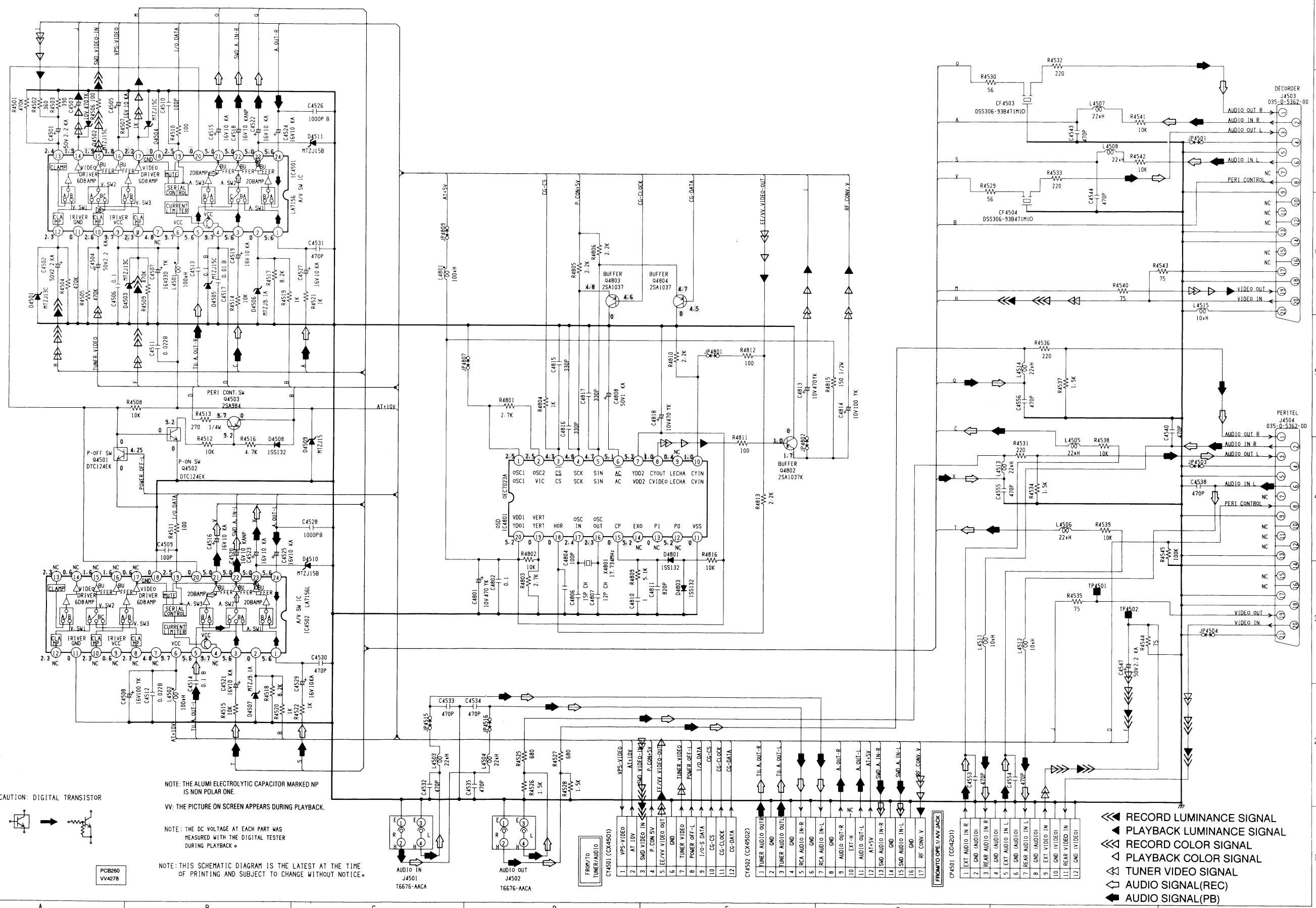


(HI-FI PCB)

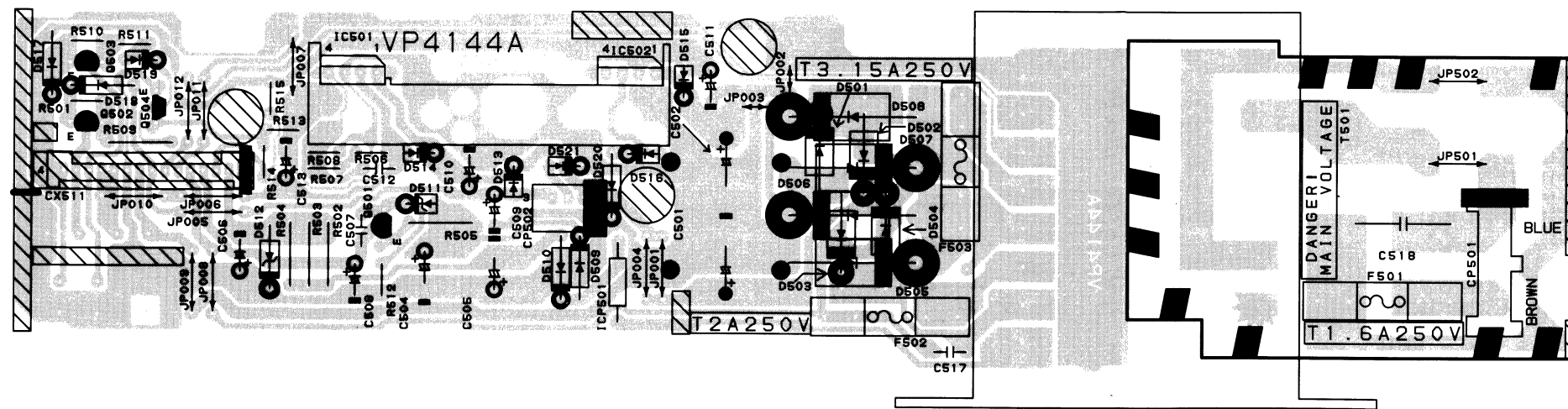


21PIN SCHEMATIC DIAGRAM

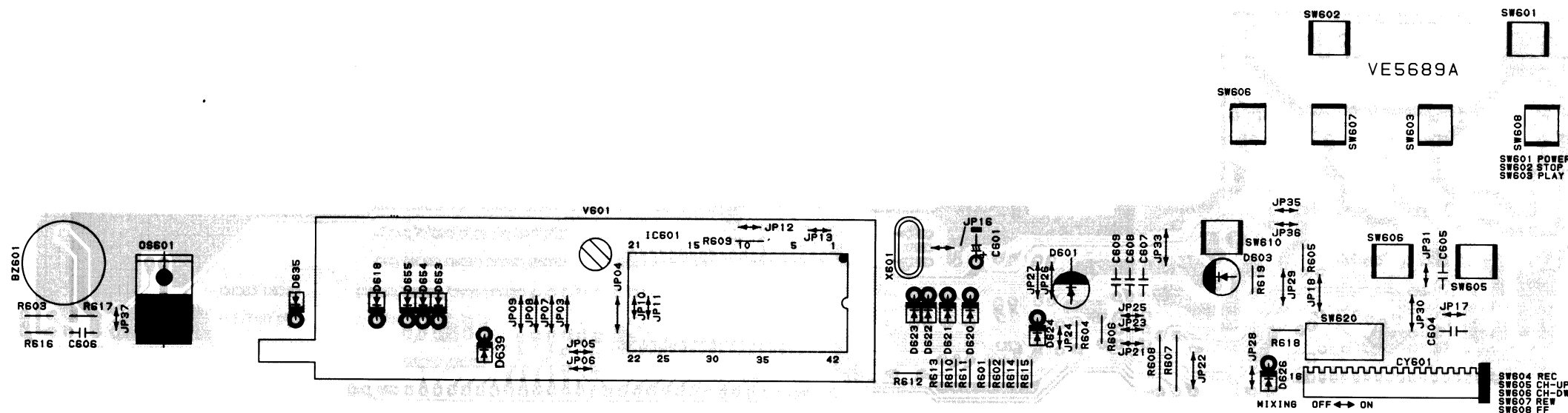
(21PIN PCB)



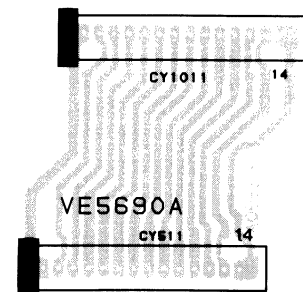
POWER PRINTED CIRCUIT BOARDS



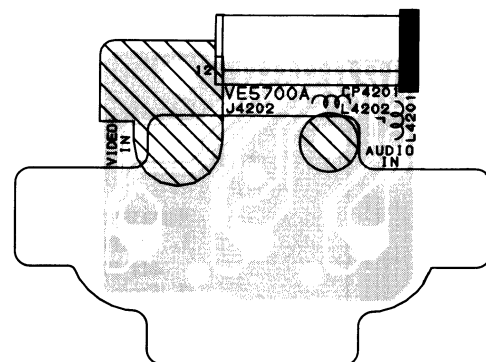
OPERATION 1



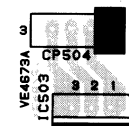
OPERATION 2



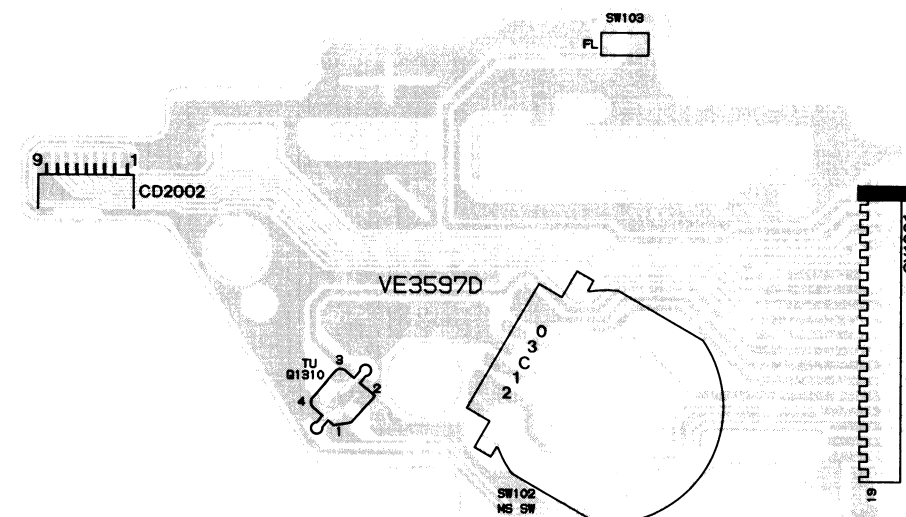
A/V JACK



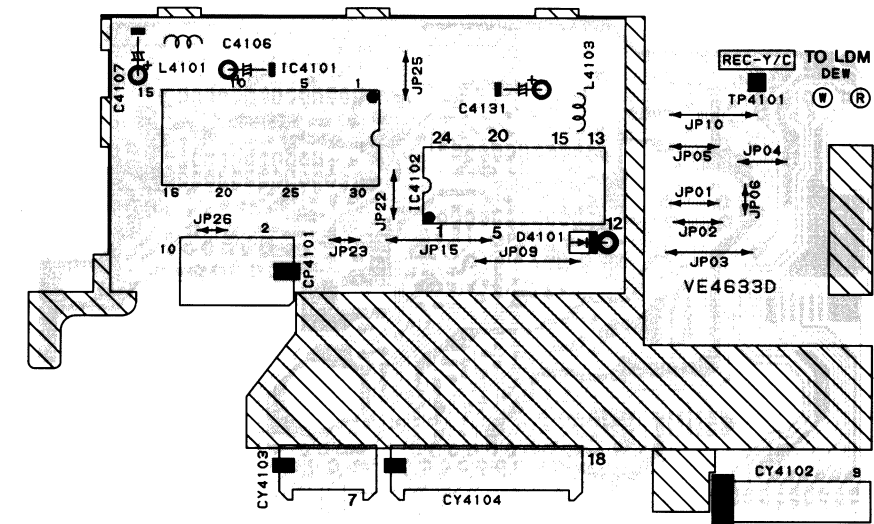
TRANSISTOR



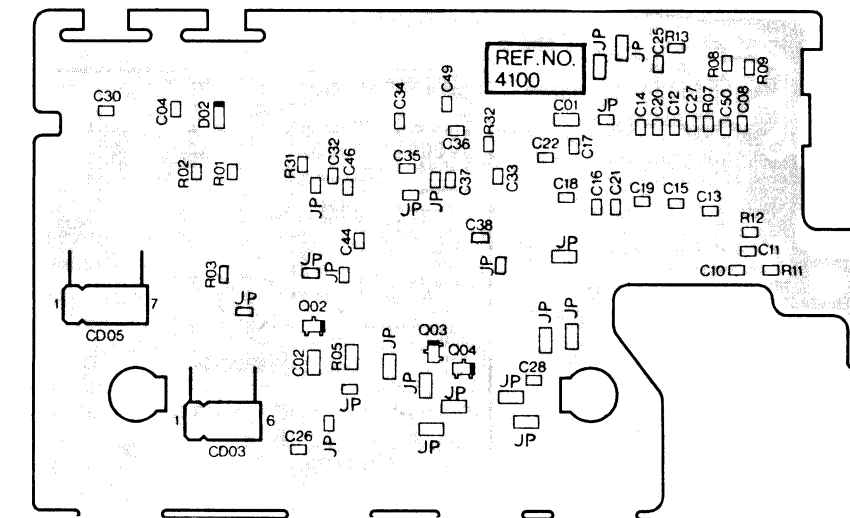
DECK



HEAD AMP COMPONENT SIDE



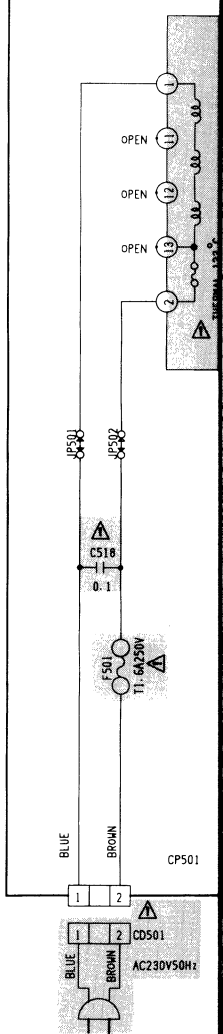
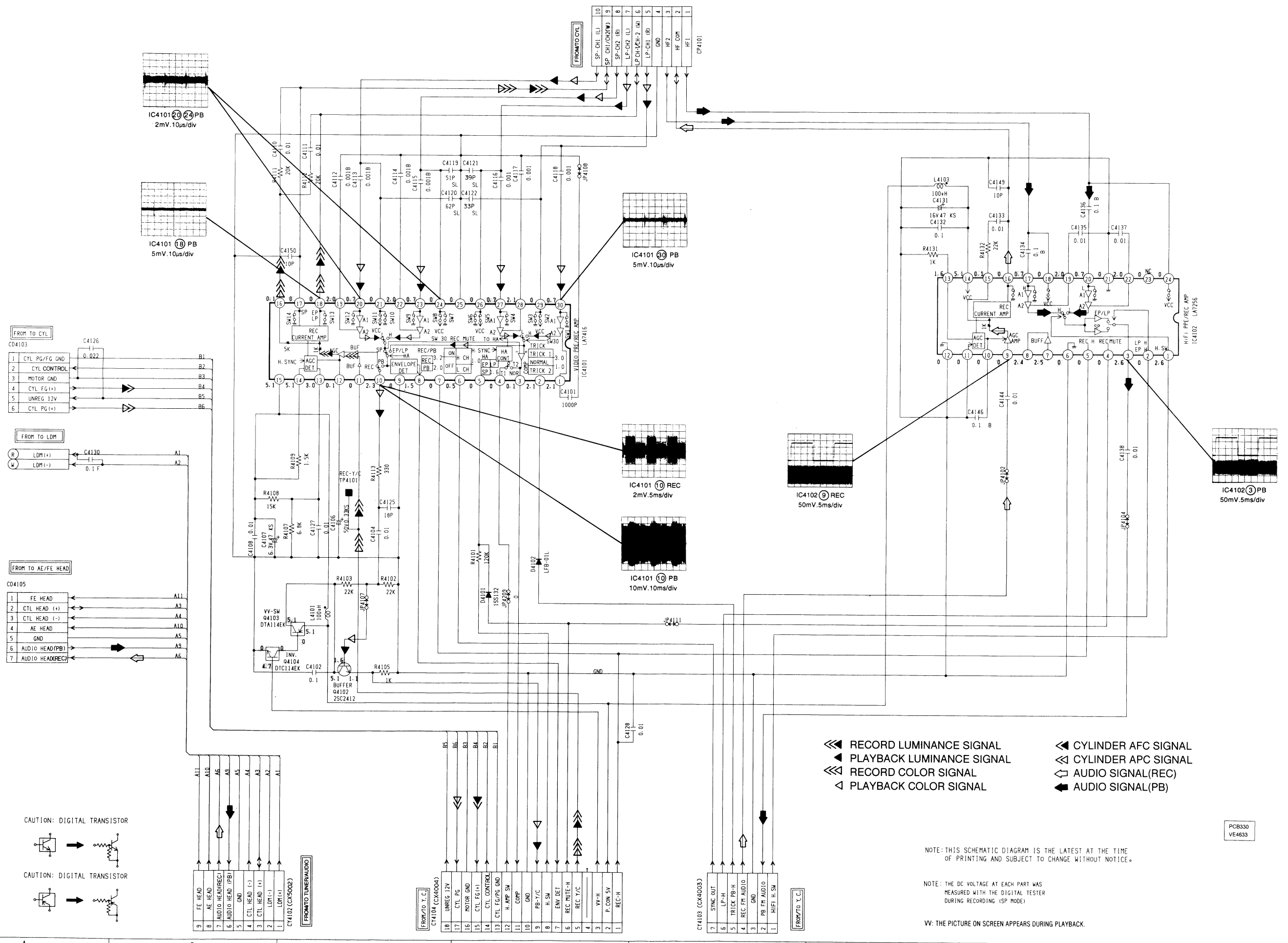
SOLDER SIDE



- Reference Number Abbreviation**
1. Reference numbers of two and three digits are abbreviations of four digits.
 2. Each block has its own Reference number series which is shown in each block.
 3. Each block is separated by border line.
 4. If there is a four digit Reference number shown in another series block, treat it as original block's part.
 5. This rule is not applied to jumper wires.
- JP JUMPER

HEAD AMP SCHEMATIC DIAGRAM

(HEAD AMP PCB)



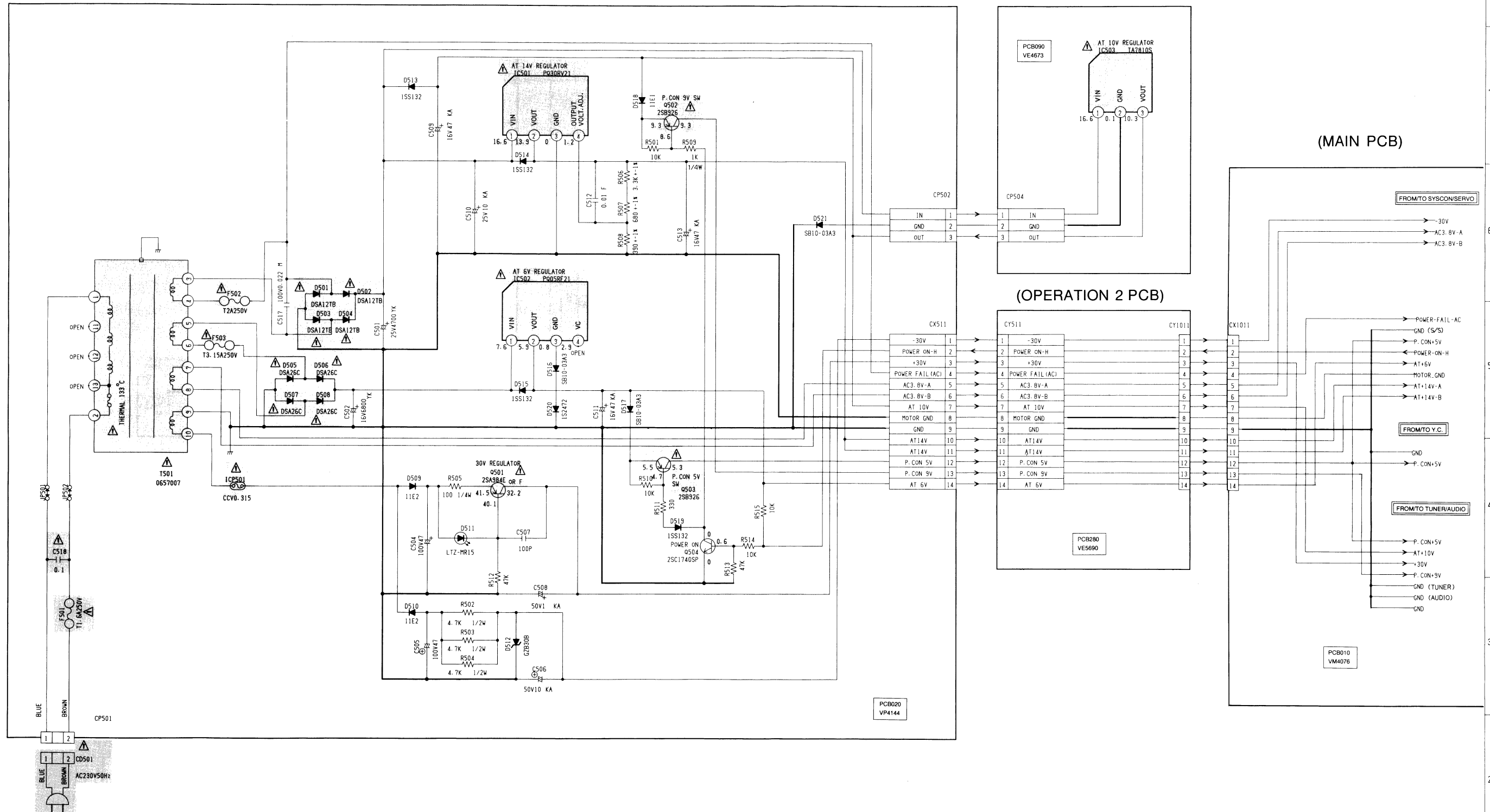
POWER / OPERATION 2 SCHEMATIC DIAGRAM

(POWER PCB)

(TRANSISTOR PCB)

(MAIN PCB)

(OPERATION 2 PCB)

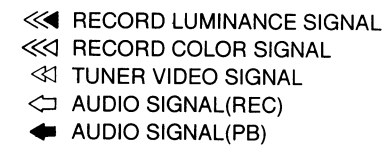


NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

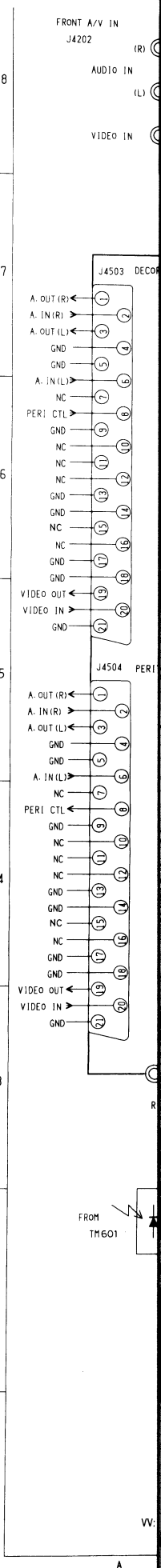
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

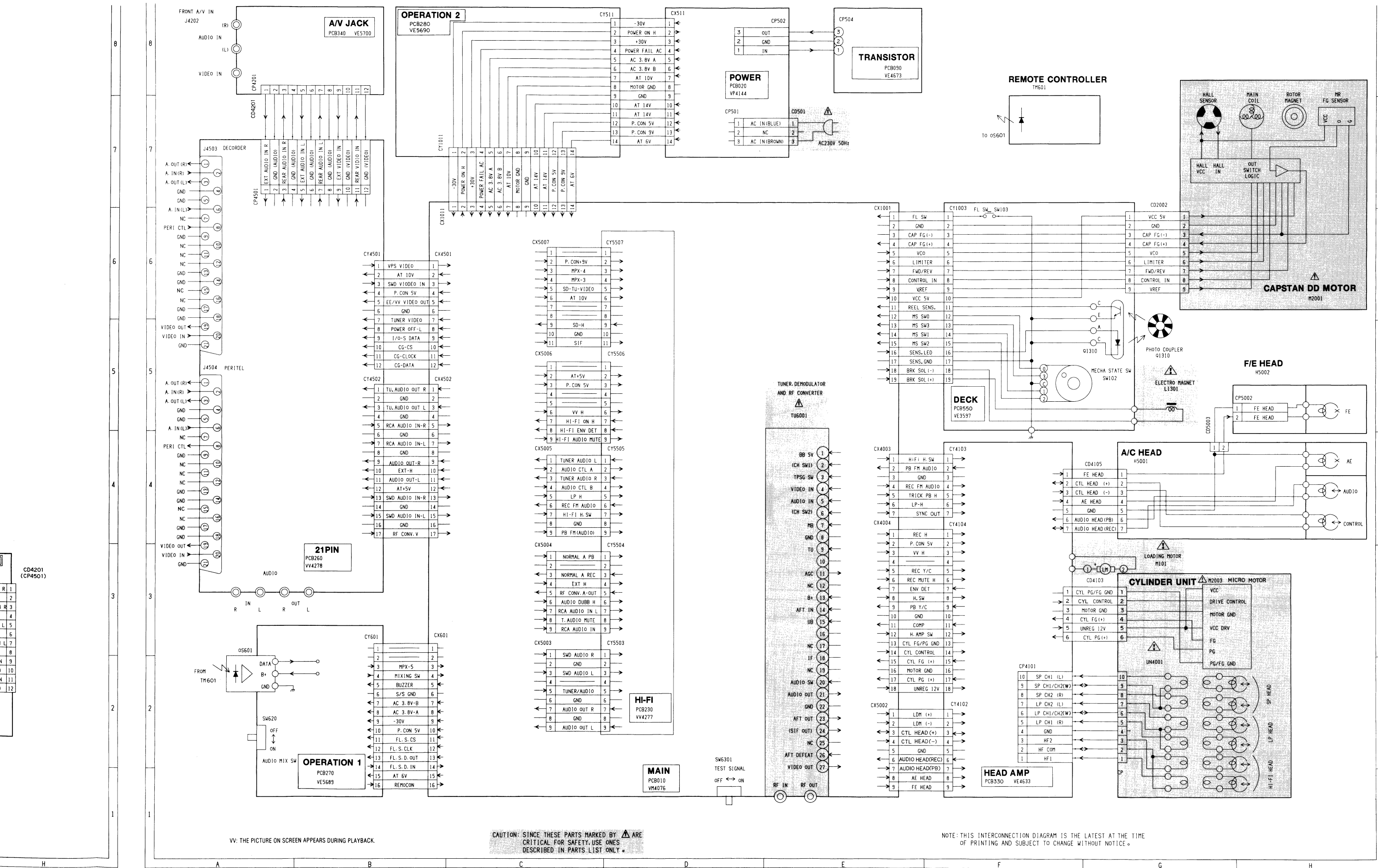
(OPERATION 1 PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.



INTERCONNECTION DIAGRAM



IC DESCRIPTION

OEC8061A

Pin No.	Pin Name	I/O	Description
1	MSSW3	I	Mecha state switch terminal.
2	MSSW2	I	
3	MSSW1	I	
4	MSSW0	I	
5	FL-SW	I	Input terminal of Front Loading sw.
6	BRSOL	O	Output the HIGH signal while the deck latch magnet is activating.
7	POWER	O	Output the LOW signal during the Power ON.
8	CG CS	O	Output the CS signal of character generator IC.
9	DAVN	O	Output the "L".
10	EXT	O	Output the HIGH when the external input is selected.
11	V-PB	O	Output the HIGH signal during the finished playback.
12	AMUTE	O	This pin output the HIGH to mute the sound at the switching points between E-E and V-V during the special playback.
13	IIC CLK	O	I ² C serial clock line.
14	IIC DT	I/O	I ² C serial data line.
15	FL-CS	O	Output the LOW signal during the select.
16	FL-CLK	O	Output terminal of SERIAL CLOCK.
17	FL-IN	I	Input terminal of SERIAL DATA.
18	FL-OUT	O	Output terminal of SERIAL DATA.
19	/RST	I	Reset will be done when the voltage goes to HIGH after the reset signal.
20	EXI	I	Output the HIGH when the external input is selected.
21	V-H SW	O	Output terminal of HEAD SW.
22	D-V SYNC	O	Intative V-SYNC signal output during the special playback.
23	C-PH	O	Output the CAPSTAN phase error.
24	C-SP	O	Output the CAPSTAN speed error.
25	D-PH	O	Output the CYLINDER phase error.
26	D-SP	O	Output the CYLINDER speed error.
27	TV/VCR	O	No used.
28	LD-R	O	Output signal to control the rotation direction of the LOADING MOTOR.
29	LD-F	O	
30	VDD	—	5V
31	X0	O	Terminal to connect the timer clock oscillator (32kHz).
32	X1	I	

IC DESCRIPTION

OEC8061A

Pin No.	Pin Name	I/O	Description
33	VSS	—	Ground.
34	OSC1	I	Connect the 12MHz crystal oscillator.
35	OSC2	O	
36	DM ON	I/O	Compensation pulse output for horizontal shaking during the slow.
37	Hi-HSW	O	Output terminal of Hi-Fi H SW.
38	LP-H	O	Output the HIGH at tape speed LP.
39	SP-L	O	Output the LOW at tape speed SP.
40	CP-PU/VD-PD	O	Output the HIGH signal during tape loading.
41	CP STL	I/O	Output the "L".
42	CP FULL	I/O	Output the "L".
43	CP REV	O	Control the motor rotation direction.
44	REC H	O	Output the HIGH signal during the recording.
45	BUZZER	O	Output terminal of voltage buzzer.
46	TUNER	O	Output terminal of PWM at 14 bit.
47	STEREO-L	I	Input selecting for bilingual broadcast.
48	BILING-L	I	
49	SECAM-H2	O	Change of PAL/SECAM.
50	PAL-H	O	Change of NTSC/PAL.
51	ARECST-H	O	Output the HIGH signal during recording and audio recoding.
52	AEE-H	O	Selecting control for PLAYBACK voice or EE voice.
53	A.DUB-H	O	Output for external input selecting during the audio dubbing.
54	A.CTL-A	O	Audio output selecting of Hi-Fi IC.
55	A.CTL-B	O	The delay amount between D-PG signal and H. SW parse used as the voltage.
56	PGMM	I	
57	FGI	I	Input terminal for CAP FG signal direction.
58	FGF	O	Output terminal for CAP FG signal direction.
59	C-FG	I	Input terminal for CAP FG signal detection.
60	D-PG	I	Input terminal for CYL PG signal detection.
61	D-FG	I	Input terminal for CYL FG signal detection.
62	AVSS	—	Ground
63	VRO	O	Output terminal for servo base voltage.
64	VRI	I	Input terminal of servo base voltage.

IC DESCRIPTION

OEC8061A

Pin No.	Pin Name	I/O	Description
65	CIR	I	Input terminal of CTL PEAKE CLAMP.
66	CIF	I	
67	TAB SW	I	Detection for the tape erase prevention tab.
68	RCTLN	O	Output terminal of CTL signal.
69	RCTLP	I/O	Input terminal of CTL signal.
70	CTLS	O	Output terminal of CTL signal for CTL AMP.
71	CTLH	I	Input terminal of CTL signal for CTL AMP.
72	CTLA	I	Ground
73	CTLG	I	
74	CO	O	Output terminal of CTL signal for AMP.
75	AVDD	—	Should be connected to VDD.
76	V-SYNC	I	Wave form adjustment of VSYNC signal.
77	REM IN	I	Input the infrared remotecontrol.
78	SD	I	Input the searching to channel.
79	P-FAIL	I	Input the power fail detection pulse.
80	AGC_DET	I	Input AGC voltage of the timer to search the magnetic field strength.
81	HI-FI_DET	I	Input the reel sens.
82	A.MIX_SW	I	Input the AUDIO MIXING of ON/OFF.
83	EOT	I	Tape end sensor input signal.
84	BOT	I	Tape start sensor input signal.
85	TU-P	I	Search if there is Hi-Fi signal when the tape is played back.
86	AFT SC	I	Input terminal of S-CURVE signal.
87	H-ENV	I	Input the Hi-Fi ENV for AUTO TRACKING.
88	V-ENV	I	Input the VIDEO ENV for AUTO TRACKING.
89	CP-RST	O	Reset the condenser's error of servo filter.
90	TRICK PB	O	Output the HIGH signal during the special playback.
91	VREC ST	O	Output the HIGH signal during the recording.
92	AVEE	O	Output the HIGH signal during the E-E of video/audio signal.
93	TA MUTE	O	Output terminal of tuner audio mute. tuner
94	AFT DEF	O	No used.
95	BAND B	O	No used.
96	BAND A	O	No used.

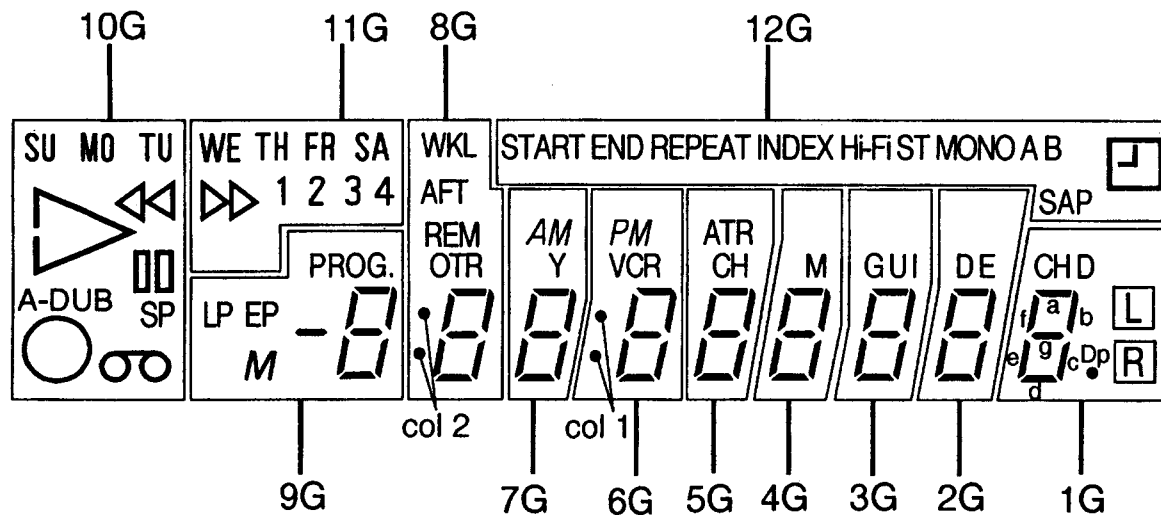
IC DESCRIPTION

OEC8061A

Pin No.	Pin Name	I/O	Description
97	ROT	O	Control the color rotary.
98	HAMP	O	Control the playback output selection of head amp.
99	D-ENV	I	DC voltage in propation to the video envelope level is added from amp.
100	S.DATA	I/O	Serial data output for frequency synthesizer IC and 21 pin IC.

V651(FV677G)

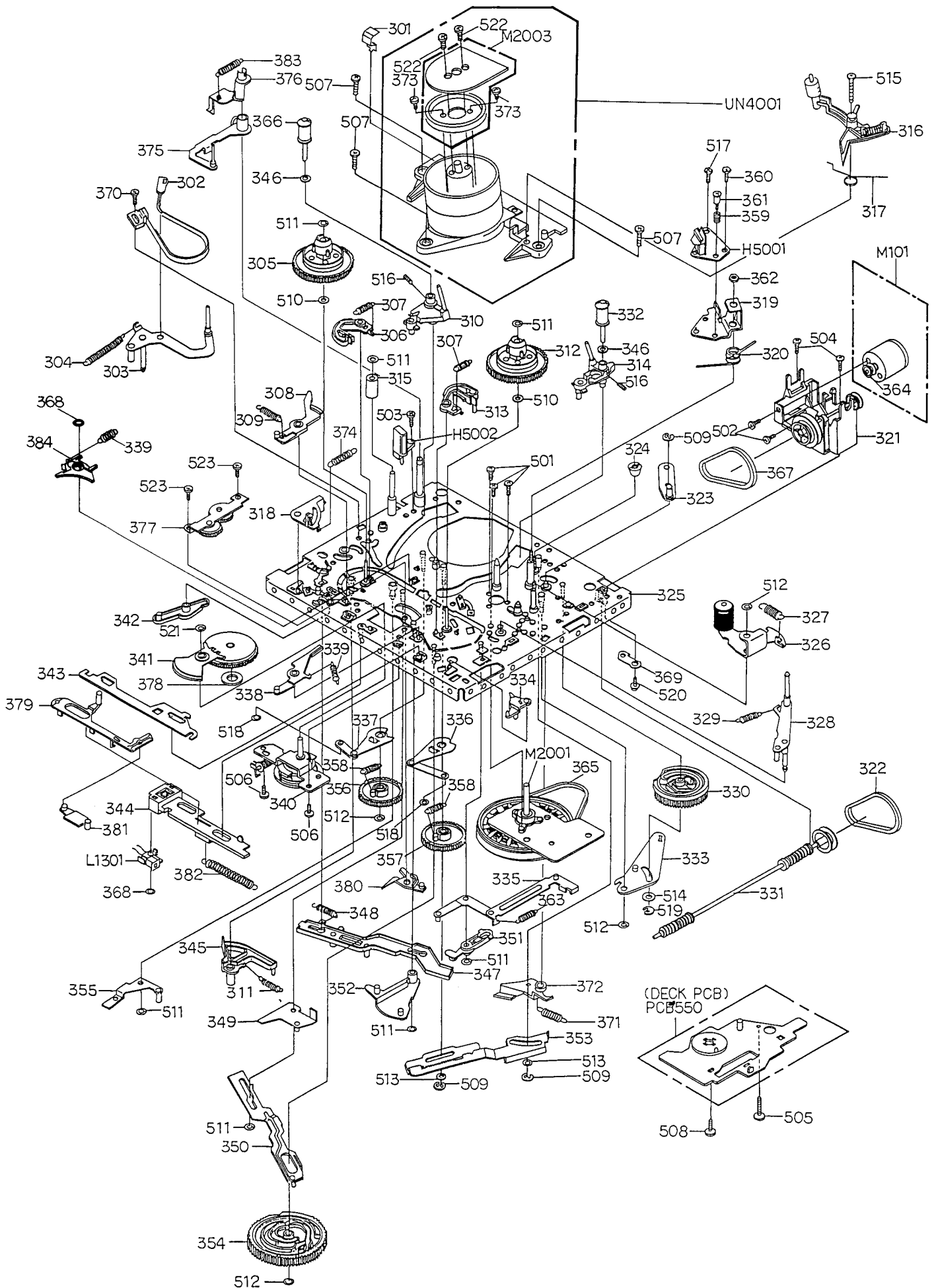
GRID ASSIGNMENT



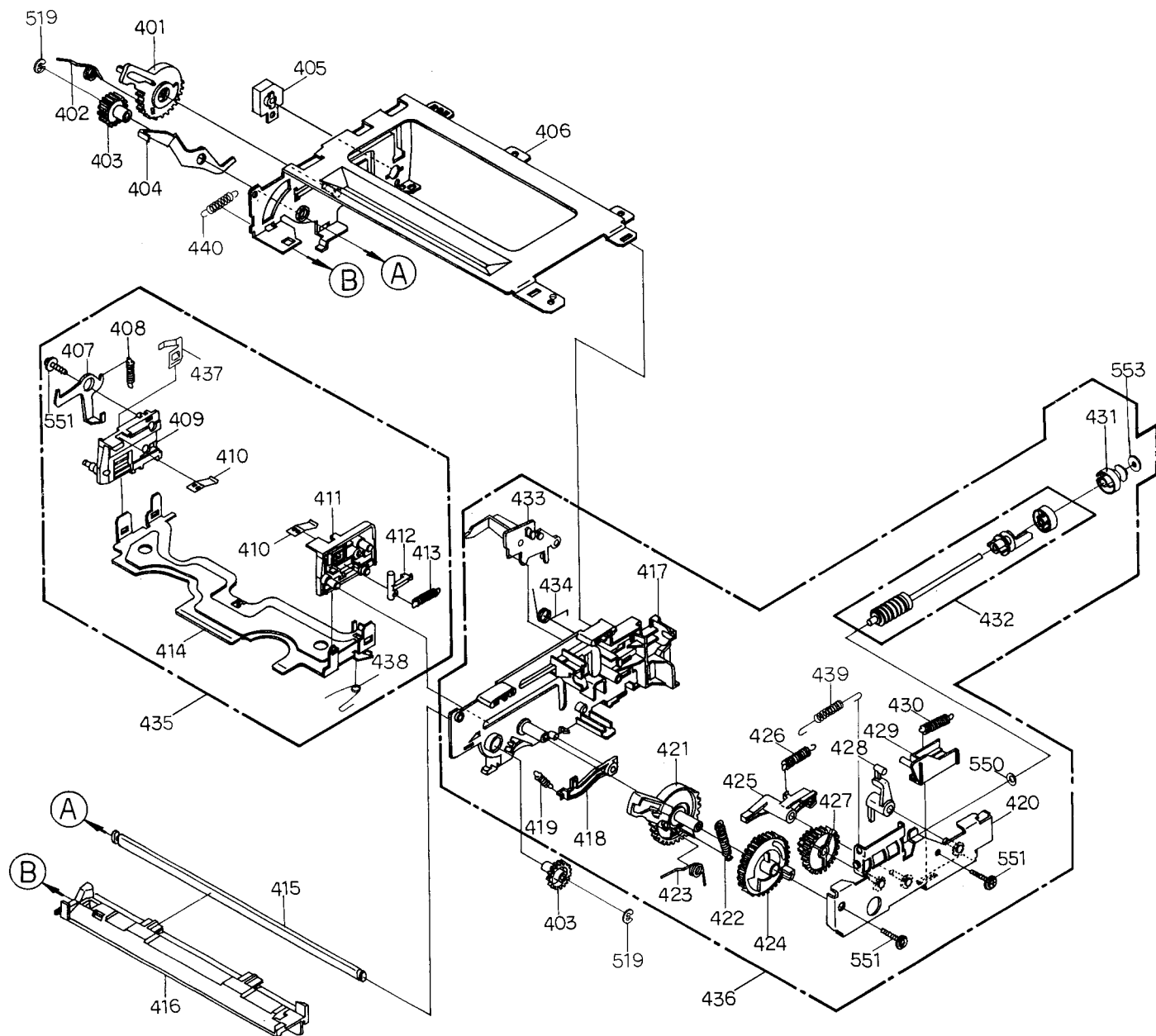
ANODE CONNECTION

	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	START	WE	SU	a	a	a	a	a	a	a	a	a
P2	END	TH	MO	b	b	b	b	b	b	b	b	b
P3	REPEAT	FR	TU	c	c	c	c	c	c	c	c	c
P4	INDEX	SA	00	d	d	d	d	d	d	d	d	d
P5	HI-FI	1	00	e	e	e	e	e	e	e	e	e
P6	ST	2	00	f	f	f	f	f	f	f	f	f
P7	SAP	3	00	g	g	g	g	g	g	g	g	g
P8	00	4	00	col 2	col 1	col 1	col 1	col 1	col 1	col 1	col 1	Dp
P9	MONO A	00	00	PROG.	OTR	Y	VCR	CH	M	GUI	DE	CH
P10	B	00	00	EP	AFT	AM	PM	ATR	BIL	PDC	VPS	D
P11	00	00	A-DUB	LP	WKL	00	00	00	00	00	00	R
P12	00	00	00	M	REM	00	00	00	00	00	00	L

CHASSIS EXPLODED VIEW



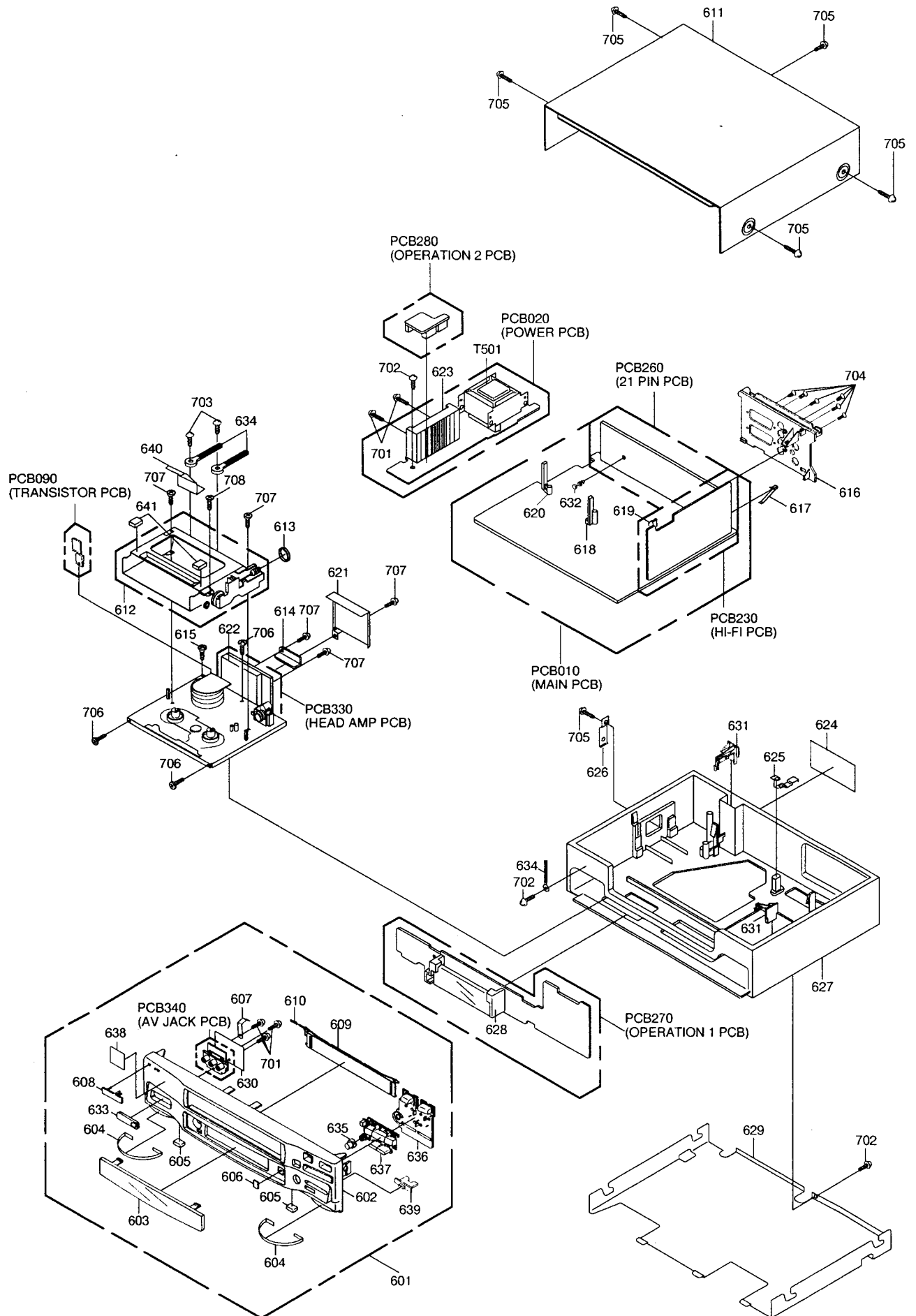
FRONT LOADING EXPLODED VIEW



ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
MAIN PCB ASS'Y			*** DIODES (CONT.) ***		
*** RESISTORS ***			D1011	S1-SS1-320-000	DIODE, 1SS132T
R1003	88-188-181-010	RES. 180-1/6W	D1014	S1-SS1-320-000	DIODE, 1SS132T
R1026	88-130-822-010	RES. 8.2K-1/6W	D1015	SD-7RA-204-K00	DIODE, DA204KT147
R1128	S6-150-12R-7J0	RES. FUSE 2.7-1W	D1016	S3-Z68-V10-000	ZENER, MTZJ6.8B
R4014	88-121-182-010	RES. 1.8K-1/6W	D1018	S9-7U0-6R2-1C0	ZENER, MTZJ6.2C
R4015	88-130-822-010	RES. 8.2K-1/6W	D4001	S0-400-721-010	DIODE, RB721Q
R4029	88-121-512-080	RES. 5.1K-1/10W	D4007	S1-VT0-247-200	DIODE, 1S2472T
*** CAPACITORS ***			D4010	S1-SS1-320-000	DIODE, 1SS132T
C704	87-010-248-080	CAP. E 220-6.3V	D4013	S1-SS1-320-000	DIODE, 1SS132T
C1004	87-010-078-010	CAP. E 47-6.3V	D5001	S1-SS1-320-000	DIODE, 1SS132T
C1006	87-010-078-010	CAP. E 47-6.3V	D6302	S2-8T0-11E-100	DIODE, 11E1TA1
C1007	87-015-973-010	CAP. E 22-16V	D6303	S1-SS1-320-000	DIODE, 1SS132T
C1008	87-015-973-010	CAP. E 22-16V	D6304	S2-8T0-11E-100	DIODE, 11E1TA1
C1009	87-015-973-010	CAP. E 22-16V	D6306	S1-VT0-247-200	DIODE, 1S2472T
C1016	S0-JTS-L5H-1J0	CAP. CER 22PF-50V	D6307	S1-SS1-320-000	DIODE, 1SS132T
C1017	S0-JTS-L5H-1J0	CAP. CER 22PF-50V	*** ICS ***		
C1018	S0-001-937-600	CAP. E 0.1F-5.5V	IC701	S3-ED6-564-900	IC, SDA5649
C1019	87-010-078-010	CAP. E 47-6.3V	IC1001	S5-1F5-806-1A0	IC, OEC8061A
C1021	S0-JTS-L5H-1J0	CAP. CER 22PF-50V	IC1002	S9-UJ0-T60-0H0	IC, PST600H
C1025	87-016-141-080	CAP. E 1-50V	IC1003	S0-1D0-656-400	IC, AN6564
C1030	87-015-973-010	CAP. E 22-16V	IC1004	S0-7S0-886-V10	IC, BA6886-V1
C1031	87-015-973-010	CAP. E 22-16V	IC1005	S5-7D0-4C0-400	IC, BR24C04
C1032	87-010-035-010	CAP. E 2.2-50V	IC4001	S0-3D3-744-900	IC, LA7449
C1033	87-010-035-010	CAP. E 2.2-50V	IC4002	87-070-170-010	IC, LC89970
C1034	87-015-973-010	CAP. E 22-16V	IC5001	S0-3D7-728-600	IC, LA7286
C1040	87-010-264-010	CAP. E 100-10V	IC6301	87-020-396-010	IC, LA7910(1)
C1046	87-016-141-080	CAP. E 1-50V	IC6302	87-020-261-010	IC, LA6358ST
C1048	87-015-973-010	CAP. E 22-16V	IC6303	87-027-327-010	IC, UPC574J-T
C1053	87-010-908-080	CAP. E 220-10V	*** TRANSISTORS ***		
C1062	S0-JTS-L5H-1J0	CAP. CER 22PF-50V	Q1001	84-JP9-626-010	PHOTO TR, PT-304R
C1072	87-010-908-080	CAP. E 220-10V	Q1002	84-JP9-626-010	PHOTO TR, PT-304R
C4002	87-010-378-080	CAP. E 10-16V	Q1003	SD-WT0-111-100	TR, 2SD1111
C4006	87-010-378-010	CAP. E 10-16V	Q1006	89-110-372-010	TR, 2SA1037
C4008	S0-JTS-L5H-1J0	CAP. CER 22PF-50V	Q1007	SN-YTC-050-010	TR, DTC124E
C4010	87-010-378-080	CAP. E 10-16V	Q1008	SN-YTC-050-010	TR, DTC124E
C4012	87-010-378-010	CAP. E 10-16V	Q1009	SN-YTC-050-010	TR, DTC124E
C4014	87-010-374-080	CAP. E 47-6.3V	Q1010	SA-3T0-984-K00	TR, 2SA984K(E,F)
C4015	87-010-378-080	CAP. E 10-16V	Q1011	SN-YTC-050-010	TR, DTC124E
C4016	87-010-401-080	CAP. E 1-50V	Q1013	SN-YTC-050-010	TR, DTC124E
C4023	87-010-401-080	CAP. E 1-50V	Q1014	SN-YTC-050-010	TR, DTC124E
C4024	87-010-374-080	CAP. E 47-6.3V	Q1016	SN-YTC-050-010	TR, DTC124E
C4026	87-010-401-080	CAP. E 1-50V	Q1017	89-324-122-010	TR, 2SC2412
C4028	87-010-404-080	CAP. E 4.7-50V	Q4001	89-110-372-010	TR, 2SA1037
C4031	S6-M3T-047-3J0	CMPL 0.047-50V	Q4002	89-324-122-010	TR, 2SC2412
C4041	87-010-374-080	CAP. E 47-6.3V	Q4009	SN-YTC-050-010	TR, DTC124E
C4057	87-010-374-080	CAP. E 47-6.3V	Q4010	SP-YTC-050-010	TR, DTA124E
C4060	87-010-912-080	CAP. E 1-50V	Q4011	89-324-122-010	TR, 2SC2412
C4061	87-010-912-080	CAP. E 1-50V	Q4012	89-110-372-010	TR, 2SA1037
C4070	87-010-378-080	CAP. E 10-16V	Q4013	89-324-122-010	TR, 2SC2412
C5001	87-010-403-080	CAP. E 3.3-50V	Q4014	89-324-122-010	TR, 2SC2412
C5002	87-010-404-080	CAP. E 4.7-50V	Q4015	89-324-122-010	TR, 2SC2412
C5005	87-010-580-040	CAP. TAN 1-25V	Q4018	89-324-122-010	TR, 2SC2412
C5012	87-010-379-080	CAP. E 22-16V	Q4020	89-324-122-010	TR, 2SC2412
C5014	87-010-378-080	CAP. E 10-16V	Q4022	89-110-372-010	TR, 2SA1037
C5015	87-015-183-010	CAP. TAN 4.7-10V	Q4023	SN-YTC-050-010	TR, DTC124E
C5017	87-010-380-080	CAP. E 47-16V	Q4024	SN-YTC-050-010	TR, DTC124E
C5026	87-010-379-080	CAP. E 22-16V	Q4030	89-110-372-010	TR, 2SA1037
C5028	87-010-401-080	CAP. E 1-50V	Q4036	89-324-122-010	TR, 2SC2412
C5031	87-010-378-010	CAP. E 10-16V	Q4037	87-026-217-080	TR, DTC124ES
C6301	87-010-263-080	CAP. E 100-6.3V	Q4038	SN-YTC-050-010	TR, DTC124E
C6302	87-010-263-080	CAP. E 100-6.3V	Q4039	SN-YTC-050-010	TR, DTC124E
C6303	87-010-402-080	CAP. E 2.2-50V	Q5001	89-313-172-010	TR, 2SC1317
C6304	87-010-402-080	CAP. E 2.2-50V	Q5004	89-313-172-010	TR, 2SC1317
C6305	87-010-402-080	CAP. E 2.2-50V	Q5005	S8-3T0-069-800	TR, 2SB698(E,F)
C6307	87-010-490-010	CAP. E 0.1-50V	Q5006	SN-YTC-050-010	TR, DTC124E
C6310	87-010-235-080	CAP. E 470-16V	Q6303	89-324-122-010	TR, 2SC2412
C6312	87-010-404-080	CAP. E 4.7-50V	Q6304	S8-2A0-373-400	TR, 2SC3734
C6313	88-700-840-010	CMPL 0.033-50V	Q6307	89-110-372-010	TR, 2SA1037
C6314	88-700-840-010	CMPL 0.033-50V	Q6309	89-110-372-010	TR, 2SA1037
C6320	87-010-221-080	CAP. E 470-10V	Q6311	SN-YTC-050-010	TR, DTC124E
C6323	87-010-400-080	CAP. E 0.47-50V	Q6312	SP-YTC-050-010	TR, DTA124E
C6327	87-010-378-080	CAP. E 10-16V	Q6313	SN-YTC-050-010	TR, DTC124E
*** DIODES ***			*** COILS ***		
D1001	84-JP9-627-010	LED, LN59LMI	L701	87-003-152-010	COIL, 100UH
D1002	S1-SS1-320-000	DIODE, 1SS132T	L4001	S2-167-D10-1K0	COIL, 100UH
D1003	S1-SS1-320-000	DIODE, 1SS132T	L4003	S2-167-D10-1K0	COIL, 100UH
D1004	S2-8T0-11E-100	DIODE, 11E1TA1	L4005	S2-1LA-627-1K0	COIL, 270UH
D1005	S2-8T0-11E-100	DIODE, 11E1TA1	L4006	87-003-153-010	COIL, 150UH
D1006	S2-8T0-11E-100	DIODE, 11E1TA1	L4009	S2-167-D10-1K0	COIL, 100UH
D1008	S1-SS1-320-000	DIODE, 1SS132T	L4010	87-003-146-070	COIL, 15UH
D1009	S1-4T0-S19-800	DIODE, 1SS198TE	L4011	S2-1LA-612-1K0	COIL, 120UH
D1010	S1-4T0-S19-800	DIODE, 1SS198TE	L4013	87-005-204-010	COIL, 47UH

MECHANICAL EXPLODED VIEW



ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
*** COILS (CONT.) ***			*** TRANSISTORS ***		
L4014	87-003-147-010	COIL, 22UH	△ Q501	SA-3T0-984-K00	TR, 2SA984K (E, F)
L4015	87-003-102-010	COIL, 10UH	△ Q502	SB-WT0-092-600	TR, 2SB926 (S, T)
L4016	S2-1LA-627-1K0	COIL, 270UH	△ Q503	SB-WT0-092-600	TR, 2SB926 (S, T)
L4018	S2-167-D10-1K0	COIL, 100UH	Q504	87-026-447-080	TR, 2SC1740SP (R, S)
L4019	87-003-147-010	COIL, 22UH	*** FUSES ***		
L4022	S2-1LA-627-1K0	COIL, 270UH	△ F501	S8-OPT-1R6-020	FUSE, T 1.6A 250V
L4023	S2-167-D10-1K0	COIL, 100UH	△ F502	S8-OPT-020-020	FUSE, T 2A 250V
L4026	87-003-152-080	COIL, 100UH	△ F503	S8-OPT-3R1-020	FUSE, T 3.15A 250V
L4028	S2-162-829-T00	COIL, 8.2UH	*** OTHERS ***		
L5001	87-003-112-010	COIL, 1MH	FH501	S6-710-T00-060	HOLDER, FUSE EYF-52B
L5002	87-003-112-010	COIL, 1MH	FH502	S6-710-T00-060	HOLDER, FUSE EYF-52B
T5001	S3-162-600-1R0	COIL, BIAS OSC 1626001	△ ICP501	S8-32F-R31-010	MICRO FUSE CCV0.315
T5002	S3-162-100-1R0	COIL, BIAS OSC 1621001	TRANSISTOR PCB ASS'Y		
*** SWITCHES ***			*** IC ***		
SW1001	S5-00A-010-260	SW, LEVER MPU10230MLB0	△ IC503	S0-5A9-781-0S0	IC, TA7810S
SW6301	S5-102-210-300	SW, SLIDE SSSF11442A	HI-FI PCB ASS'Y		
*** VARIABLE RESISTORS ***			*** RESISTORS ***		
VR1001	S1-262-Q5B-T60	SFR, 470KB	R5513	88-130-123-010	RES, 12K-1/4W
VR5001	S1-M63-14B-T60	SFR, 10KB	R5531	88-130-153-010	RES, 15K-1/6W
*** CRYSTALS ***			R5540	88-130-122-010	RES, 1.2K-1/6W
X1001	S0-0CA-012-030	X'TAL, 12MHZ	R5560	88-130-473-010	RES, 47K-1/4W
X1002	S0-0D3-2R8-010	X'TAL, 32.768KHZ	R5561	88-130-473-010	RES, 47K-1/4W
X4001	S0-0WA-4R3-030	X'TAL, 4.43361895MHZ	R6612	88-121-243-010	RES, 24K-1/10W
*** TUNER ***			R6627	88-130-331-010	RES, 330-1/6W
△ TU6001	S1-626-010-030	RF UNIT TMUG4-101A	*** CAPACITORS ***		
*** NETWORK ***			C5502	87-010-380-080	CAP, E 47-16V
NR1001	S1-025-472-T10	R, NETWORK 4.5KX5	C5504	87-010-378-080	CAP, E 10-16V
POWER PCB ASS'Y			C5505	87-010-378-080	CAP, E 10-16V
*** RESISTORS ***			C5506	87-010-378-080	CAP, E 10-16V
R506	87-025-422-080	RES, 3.3K-1/6W	C5507	87-010-402-080	CAP, E 2.2-50V
R507	S4-X5T-668-1F0	RES, 680-1/6W	C5508	87-010-891-080	CAP, E 47-10V
R508	87-025-362-080	RES, 390-1/6W	C5509	87-010-378-080	CAP, E 10-16V
R511	88-130-331-010	RES, 330-1/6W	C5511	87-010-378-080	CAP, E 10-16V
*** CAPACITORS ***			C5512	87-010-378-080	CAP, E 10-16V
C501	87-010-453-010	CAP, E 4700-25V	C5514	87-010-378-080	CAP, E 10-16V
C502	87-016-121-090	CAP, E 6800-16V	C5516	87-010-378-080	CAP, E 10-16V
C504	87-010-229-010	CAP, E 47-100V	C5517	87-015-708-010	CAP, E 22-10V
C505	87-010-229-010	CAP, E 47-100V	C5518	87-010-378-080	CAP, E 10-16V
C506	87-010-560-010	CAP, E 10-50V	C5519	87-015-708-010	CAP, E 22-10V
C508	87-010-401-080	CAP, E 1-50V	C5520	87-010-378-080	CAP, E 10-16V
C509	87-010-380-080	CAP, E 47-16V	C5521	87-010-378-080	CAP, E 10-16V
C510	87-010-412-010	CAP, E 10-25V	C5522	87-010-560-040	CAP, E 10-50V
C511	87-010-380-080	CAP, E 47-16V	C5523	87-010-560-040	CAP, E 10-50V
C513	87-010-380-080	CAP, E 47-16V	C5524	87-010-032-010	CAP, E 4.7-25V
△ C518	S2-162-B10-4M0	CMP, MP 0.1-250V	C5525	87-010-032-010	CAP, E 4.7-25V
*** DIODES ***			C5530	87-010-378-080	CAP, E 10-16V
△ D501	S2-3TD-SA1-2B0	DIODE, DSA12TB	C5531	87-010-378-080	CAP, E 10-16V
△ D502	S2-3TD-SA1-2B0	DIODE, DSA12TB	C5536	87-010-550-080	CAP, E 1000-6.3V
△ D503	S2-3TD-SA1-2B0	DIODE, DSA12TB	C6613	87-010-404-080	CAP, E 4.7-50V
△ D504	S2-3TD-SA1-2B0	DIODE, DSA12TB	C6617	87-010-404-080	CAP, E 4.7-50V
△ D505	S2-3J0-A26-C00	DIODE, DSA26C-KD2	C6621	87-010-378-080	CAP, E 10-16V
△ D506	S2-3J0-A26-C00	DIODE, DSA26C-KD2	C6622	87-010-378-080	CAP, E 10-16V
△ D507	S2-3J0-A26-C00	DIODE, DSA26C-KD2	C6623	87-010-402-080	CAP, E 2.2-50V
△ D508	S2-3J0-A26-C00	DIODE, DSA26C-KD2	C6625	87-010-402-080	CAP, E 2.2-50V
D509	S2-8T0-11E-200	DIODE, 11E2TA1	C6626	87-010-263-080	CAP, E 100-6.3V
D510	S2-8T0-11E-200	DIODE, 11E2TA1	C6630	87-010-112-080	CAP, E 100-16V
D511	SB-7T2-MR1-500	LED, LTZ-MR15	C6633	87-010-378-080	CAP, E 10-16V
D512	S9-301-300-1B0	ZENER, GZB30B	C6636	87-010-380-080	CAP, E 47-16V
D513	S1-SS1-320-000	DIODE, 1SS132T	C6638	87-010-680-010	CAP, E 33-16V
D514	S1-SS1-320-000	DIODE, 1SS132T	C6642	87-010-400-080	CAP, E 0.47-50V
D515	S1-SS1-320-000	DIODE, 1SS132T	C6644	87-010-401-080	CAP, E 1-50V
D516	S2-3U1-003-A30	DIODE, SB10-03A3	C6645	87-010-400-080	CAP, E 0.47-50V
D517	S2-3U1-003-A30	DIODE, SB10-03A3	C6646	87-010-380-080	CAP, E 47-16V
D518	S2-8T0-11E-100	DIODE, 11E1TA1	*** DIODES ***		
D519	S1-SS1-320-000	DIODE, 1SS132T	D5503	S2-3U1-003-A30	DIODE, SB10-03A3
D520	S1-VT0-247-200	DIODE, 1S2472T	D5504	S1-VT0-247-200	DIODE, 1S2472T
D521	S2-3U1-003-A30	DIODE, SB10-03A3	D5505	S2-3U1-003-A30	DIODE, SB10-03A3
*** ICS ***			D6602	S1-SS1-320-000	DIODE, 1SS132T
△ IC501	S0-GA9-RV2-100	IC, PQ30RV21	D6603	S1-SS1-320-000	DIODE, 1SS132T
△ IC502	S0-4E1-C02-040	IC, PQ05RF21	D6604	S1-SS1-320-000	DIODE, 1SS132T
			*** ICS ***		
			IC5500	S0-3F7-725-200	IC, LAT7252M
			IC6601	S0-5SB-872-1A0	IC, TA8721ASN
			IC6602	87-001-957-010	IC, LAT7210
			IC6604	S0-KDF-984-500	IC, TDA9845

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
*** TRANSISTORS ***			*** ICS ***		
Q5501	SN-YTC-050-010	TR,DTC124E	IC4501	87-017-929-010	IC,LA7156
Q5502	SN-YTC-050-010	TR,DTC124E	IC4502	S0-3D0-715-6L0	IC,LA7156L
Q6601	SP-YTC-050-010	TR,DTA124E	IC4801	S9-6D0-702-3A0	IC,0EC7023A
Q6602	SN-YTC-050-010	TR,DTC124E	*** TRANSISTORS ***		
Q6604	89-324-122-010	TR,2SC2412	Q4501	SN-YTC-050-010	TR,DTC124E
*** COILS ***			Q4502	SN-YTC-050-010	TR,DTC124E
L5501	87-003-152-010	COIL,100UH	Q4503	SA-3T0-984-K00	TR,2SA984K(E,F)
L5504	87-003-221-080	COIL,180UH	Q4802	89-110-372-010	TR,2SA1037
L6602	87-003-102-010	COIL,10UH	Q4803	89-110-372-010	TR,2SA1037
L6603	S3-361-Z00-1R0	IFT,SOUND 361Z001	Q4804	89-110-372-010	TR,2SA1037
L6604	87-003-152-010	COIL,100UH	*** COILS ***		
L6605	87-003-152-010	COIL,100UH	L4501	S2-167-D10-1K0	COIL,100UH
L6606	87-003-152-010	COIL,100UH	L4502	S2-167-D10-1K0	COIL,100UH
*** VARIABLE RESISTORS ***			L4503	87-003-147-010	COIL,22UH
VR5501	S1-262-14B-T60	SFR,22KB	L4504	87-003-147-010	COIL,22UH
VR5502	S1-262-14B-T60	SFR,22KB	L4505	87-003-147-010	COIL,22UH
VR5503	S1-262-14B-T20	SFR,22KB	L4506	87-003-147-010	COIL,22UH
VR5504	S1-262-14B-T20	SFR,22KB	L4507	87-003-147-010	COIL,22UH
VR6601	S1-262-H3B-T60	SFR,2.2KB	L4508	87-003-147-010	COIL,22UH
*** FILTERS ***			L4511	87-003-102-010	COIL,10UH
CF6604	S0-12T-5R7-420	CER,FIL SFE5.74	L4512	87-003-102-010	COIL,10UH
CF6607	S0-12T-5R7-020	CER,FIL CDSH5.74	L4513	87-003-147-010	COIL,22UH
*** CRYSTAL & CERAMIC OSCILLATOR ***			L4514	87-003-147-010	COIL,22UH
X6601	S0-0WA-010-030	X'TAL,10MHZ	L4515	87-003-102-010	COIL,10UH
X6602	S0-03R-500-010	CER.OSC KBR-500AH2	L4801	S2-167-D10-1K0	COIL,100UH
21PIN PCB ASS'Y			*** JACKS & SOCKETS ***		
*** RESISTORS ***			J4501	S6-0M1-510-010	JACK,RCA 3.5
R4513	88-188-271-010	RES,270-1/4W	J4502	S6-0M1-510-010	JACK,RCA 3.5
R4531	88-130-221-010	RES,220-1/6W	J4503	S6-3G1-000-340	SOCKET,21PIN
R4536	88-130-221-010	RES,220-1/6W	J4504	S6-3G1-000-340	SOCKET,21PIN
R4540	88-130-750-010	RES,75-1/6W	*** CRYSTAL ***		
R4801	88-130-272-010	RES,2.7K-1/6W	X4801	S0-061-7R7-020	X'TAL,17734.475KHZ
R4809	88-121-512-010	RES,5.1K-1/10W	*** FILTERS ***		
*** CAPACITORS ***			CF4503	S1-62L-TQ2-M10	FILT,DSS306-93B471M10
C4501	87-010-402-080	CAP,E 2.2-50V	CF4504	S1-62L-TQ2-M10	FILT,DSS306-93B471M10
C4502	87-010-402-080	CAP,E 2.2-50V	OPERATION 1 PCB ASS'Y		
C4503	87-010-221-080	CAP,E 470-10V	*** RESISTORS ***		
C4504	87-010-402-080	CAP,E 2.2-50V	R606	88-130-331-010	RES,330-1/6W
C4505	87-010-378-080	CAP,E 10-16V	R619	88-130-331-010	RES,330-1/6W
C4507	87-010-980-080	CAP,E 330-16V	*** CAPACITOR ***		
C4508	87-010-112-080	CAP,E 100-16V	C601	87-010-380-080	CAP,E 47-16V
C4515	87-010-378-080	CAP,E 10-16V	*** DIODES ***		
C4516	87-010-378-080	CAP,E 10-16V	D601	S0-211-2Q0-500	LED,LM81RCPH
C4518	87-010-378-010	CAP,E 10-16V	D603	S0-21M-5Q1-100	LED,EM-553-F7T
C4519	87-010-378-080	CAP,E 10-16V	D618	S1-SS1-320-000	DIODE,1SS132T
C4520	87-010-378-010	CAP,E 10-16V	D620	S1-SS1-320-000	DIODE,1SS132T
C4521	87-010-378-080	CAP,E 10-16V	D621	S1-SS1-320-000	DIODE,1SS132T
C4522	87-010-378-080	CAP,E 10-16V	D622	S1-SS1-320-000	DIODE,1SS132T
C4523	87-010-378-080	CAP,E 10-16V	D623	S1-SS1-320-000	DIODE,1SS132T
C4524	87-010-378-080	CAP,E 10-16V	D624	S1-SS1-320-000	DIODE,1SS132T
C4525	87-010-378-080	CAP,E 10-16V	D626	S1-SS1-320-000	DIODE,1SS132T
C4527	87-010-378-080	CAP,E 10-16V	D635	S1-SS1-320-000	DIODE,1SS132T
C4529	87-010-378-080	CAP,E 10-16V	D639	S1-SS1-320-000	DIODE,1SS132T
C4547	87-010-402-080	CAP,E 2.2-50V	D653	S1-SS1-320-000	DIODE,1SS132T
C4801	87-010-221-080	CAP,E 470-10V	D654	S1-SS1-320-000	DIODE,1SS132T
C4806	88-231-150-810	CAP,CER 15PF-50V	D655	S1-SS1-320-000	DIODE,1SS132T
C4808	87-010-401-080	CAP,E 1-50V	*** IC ***		
C4813	87-010-221-080	CAP,E 470-10V	IC601	S5-1D0-251-000	IC,MN12510
C4814	87-010-264-010	CAP,E 100-10V	*** SWITCHES ***		
C4818	87-010-221-080	CAP,E 470-10V	SW601	S5-042-01T-310	SW,TACT SKHYBE075A
*** DIODES ***			SW602	S5-042-01T-310	SW,TACT SKHYBE075A
D4501	S9-7U0-130-1C0	ZENER,MTZJ13C	SW603	S5-042-01T-310	SW,TACT SKHYBE075A
D4502	S9-7U0-150-1C0	ZENER,MTZJ15C	SW604	S5-042-01T-310	SW,TACT SKHYBE075A
D4503	S9-7U0-130-1C0	ZENER,MTZJ13C	SW605	S5-042-01T-310	SW,TACT SKHYBE075A
D4504	S9-7U0-150-1C0	ZENER,MTZJ15C	SW606	S5-042-01T-310	SW,TACT SKHYBE075A
D4505	S9-7U0-150-1C0	ZENER,MTZJ15C	SW607	S5-042-01T-310	SW,TACT SKHYBE075A
D4506	S9-7U0-9R1-1A0	ZENER,MTZJ9.1A	SW608	S5-042-01T-310	SW,TACT SKHYBE075A
D4507	S9-7U0-9R1-1A0	ZENER,MTZJ9.1A	SW610	S5-042-01T-310	SW,TACT SKHYBE075A
D4508	S1-SS1-320-000	DIODE,1SS132T	SW620	S5-103-210-310	SW,SLIDE HSW2022
D4509	S9-7U0-150-100	ZENER,MTZJ15	*** CERAMIC OSCILLATOR ***		
D4510	S9-7U0-150-1B0	ZENER,MTZJ15B	X601	S0-03T-4R0-040	CER.OSC KBR-4.0MKS
D4511	S9-7U0-150-1B0	ZENER,MTZJ15B			
D4801	S1-SS1-320-000	DIODE,1SS132T			
D4803	S1-SS1-320-000	DIODE,1SS132T			

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
	*** OTHERS ***	
BZ601	S7-170-000-030	BUZZER,KBS-13DB-4P
	*** OTHERS(CONT.) ***	
OS601	S7-780-000-020	REMOTE REC,SBX1785-52
V601	S9-677-0R3-220	FL DISPLAY FV677G
	HEAD AMP PCB ASS'Y	
	*** CAPACITORS ***	
C4106	87-015-963-010	CAP,E 0.33-50V
C4107	87-010-078-010	CAP,E 47-6.3V
C4131	87-016-542-040	CAP,E 47-16V
	*** DIODES ***	
D4101	S1-SS1-320-000	DIODE,1SS132T
D4102	SD-3RL-FB0-1L0	DIODE,LFB-01L
	*** ICS ***	
IC4101	87-070-169-010	IC,LA7416
IC4102	S0-3D7-725-600	IC,LA7256
	*** TRANSISTORS ***	
Q4102	89-324-122-010	TR,2SC2412
Q4103	SP-7TB-050-010	TR,DTA114EK
Q4104	SN-YTB-050-010	TR,DTC114E
	*** COILS ***	
L4101	87-003-152-010	COIL,100UH
L4103	87-003-152-010	COIL,100UH
L4201	87-003-102-010	COIL,10UH
L4202	87-003-102-010	COIL,10UH
	A/V JACK PCB ASS'Y	
J4202	S6-0M1-310-050	JACK,RCA 3.5 T6750
	AND OTHERS	
	*** OTHERS ***	
△ T501	S4-065-700-730	TRANS.AC 0657007
△ CD501	S2-0T6-558-020	CORD,AC 0T655802
CD4201	S6-812-C06-1A0	CONN.812C061A

CHASSIS/FRONT LOADING REPLACEMENT PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Q'TY	REF.NO	PART NO.	DESCRIPTION	Q'TY
301	S5-0P5-000-230	TRANSISTOR SPR	1	403	S5-0P9-005-380	GEAR, SYNCHRO	2
302	S5-0A6-001-390	TENSION, BAND ASS'Y	1	404	S5-0P9-004-510	FLAP LEVER 2	1
303	S5-0A4-000-770	TENSION ARM ASS'Y	1	405	S5-0P9-005-370	COVER, SENSOR 2	1
304	S5-0P8-001-410	TENSION ARM SPR	1	406	S5-0A9-001-420	TOP, BRKT ASS'Y	1
305	S5-0A2-000-360	REEL S ASS'Y(8)	1	407	S5-0P9-004-580	LOCKER	1
306	S5-0A6-001-360	BRKT, MAIN S ASS'Y(8)	2	408	S5-0P8-001-540	LOCKER SPR	1
307	S5-0P8-001-870	MAIN BRAK SPR	1	409	S5-0A9-001-380	CASS, SIDE L ASS'Y	1
308	S5-0P6-004-460	ARM, S-S BRAKE 1	1	410	S5-0P9-003-540	SPR, PACK	1
309	S5-0P8-001-640	SS BRAK SPR	1	411	S5-0P9-005-360	CASS, SIDE RA	1
310	S5-0A4-001-080	BASE, S INCLI ASS'Y(8)	1	412	S5-0P9-004-740	REMOVING 2	1
311	S5-0P8-001-900	MAIN BRAK SPR 3	1	413	S5-0P8-001-980	SPR, REMOVING 2	1
312	S5-0A2-000-350	REEL T ASS'Y(8)	1	414	S5-0A9-001-220	CASS, HOLDER SUB ASS'Y	1
313	S5-0A6-001-350	BRKT, MAIN T ASS'Y(8)	1	415	S5-0P9-002-670	SYNCHRO SHAFT	1
314	S5-0A4-001-090	BASE, T INCLI ASS'Y(8)	1	416	S5-0P9-005-290	TAPE GUIDE PIECE(8)	1
315	S5-0P6-004-320	ROLLER, IMPEDANCE	1	417	S5-0P9-005-320	BRAKT, SIDE RIA	1
316	S5-0A4-001-120	ARM, AHC UNIT	1	418	S5-0P9-004-160	FRONT LOUD SWITCH LEVER	1
317	S5-0P8-002-360	SPR, AHC 1	1	419	S5-0P8-001-580	FRONT LOUD SW LEVER SPR	1
318	S5-0P6-003-060	LEVER, REC. SW(8)	1				
319	S5-0P5-000-420	AC HEAD BASE 2	1	420	S5-0A9-001-290	SIDE BRAKE R2 ASS'Y	1
				421	S5-0P9-004-310	RING, GEAR(R)	1
320	S5-0P8-002-330	SPR, AC HEAD BASE 2	1	422	S5-0P8-001-530	CLUCH GEAR SPR	1
321	S5-0A6-001-480	LOAD MOTOR BOX A A'Y	1	423	S5-0P8-001-810	RING GEAR SPR R2	1
322	S5-0P6-003-170	BELT, LOAD MOTOR(8)	1	424	S5-0P9-004-320	CLUCH, GEAR	1
323	S5-0A5-000-080	PINCH ROLLER LEVER ASS'Y	1	425	S5-0P9-004-170	LOCK LEVER	1
324	S5-0P6-004-970	NUT, ADJUST X2 ZDC	1	426	S5-0P8-001-590	LOCK LEVER SPR	1
325	----	MAIN CHASSIS JS Z4 ASS'Y	1	427	S5-0P9-004-380	WHEEL	1
326	S5-0A4-000-730	PINCH ROLLER ARM ASS'Y	1	428	S5-0P9-004-350	CLUCH, LEVER	1
327	S5-0P8-001-490	PINCH ROLLER ARM SPR	1	429	S5-0P9-004-340	SLIDE, LEVER	1
328	S5-0A4-001-050	LIMIT, POST ARM ASS'Y	1	430	S5-0P8-001-800	SLIDE, LEVER SPR 2	1
329	S5-0P8-001-480	LIMIT, POST ARM SPR	1	431	S5-0P9-005-310	JOINT PULLEY 2	1
330	S5-0P6-004-010	CAM 1 JS	1	432	S5-0A9-000-890	WORM, ASS'Y	1
331	S5-0A6-001-140	WORM ASS'Y(8)	1	433	S5-0P9-004-500	OPENER A	1
332	S5-0A4-001-020	G-ROLLER ASS'Y	1	434	S5-0P8-001-720	OPENER SPR A	1
333	S5-0A3-000-310	LOUD LEVER 2 ASS'Y	1	435	S4-510-1A6-900	HLDR, CASS ASS'Y	1
334	S5-0P6-004-540	LEVER, SUB BRAKE	1	436	S4-480-2A6-400	BRKT, SIDE R ASS'Y	1
335	S5-0A9-000-830	FRONT LOUD LEVER ASS'Y	1	437	S5-0P9-005-230	FRONT LOUD EARTH SPR	1
336	S5-0A3-000-520	LOAD, ARM T ASS'Y	1	438	S5-0P8-002-300	LOCKER(R) SPR	1
337	S5-0A3-000-510	LOAD, ARM S ASS'Y	1	439	S5-0P8-002-430	SPR, EARTH	1
338	S5-0A6-001-370	TS BRAKE ASS'Y	1	440	S5-0P8-001-570	SPR, FLAP FRONT LOAD	1
339	S5-0P8-001-650	TS BRAK SPR	1				
				501	87-743-073-410	UT2+2.6-6	3
340	S5-0A2-000-460	CLUTCH JS ASS'Y	1	502	87-268-092-010	V+3-4	2
341	S5-0A2-000-380	IDLER JS ASS'Y(8)	1	503	87-751-074-410	VT2+2.6-8	1
342	S5-0P6-004-450	LEVER MAIN BRKE 1	1	504	87-845-098-410	UT2+3-14	2
343	S5-0P6-003-100	BRKT, ACTU SUB(8)	1	505	87-345-100-210	UT2+3-16	2
344	S5-0A6-001-290	ACTU, CLUTCH ASS'Y(8)	1	506	87-743-094-410	UT2+3+6	3
345	S5-0P6-004-110	LEVER TENSION	1	507	87-841-095-410	UT2+3-8	3
346	S5-0P4-003-260	O-RING(8)	1	508	87-841-095-410	UT2+3-8	1
347	S5-0P6-003-810	BRKT, SLIDE MAIN(8)	1	509	S3-ETW-250-000	E, RING 2.5	2
348	S5-0P8-001-880	MB SLIDE SPR	1	510	S2-Q31-548-3N0	PW, 3.1-5.4-T0.13	2
349	S5-0A6-001-090	MB LEVER 2 ASS'Y	1		S2-Q31-540-3N0	PW, 3.1-5.4-T0.3	2
350	S5-0A6-001-340	T-A SLIDE JS ASS'Y	1	511	S2-P25-550-4N0	PW, 2.5-5.5-T0.4	8
351	S5-0P6-004-160	LEVER, LIMITER POST(8)	1	512	S2-P30-600-5N0	PW, 3.1-6-T0.5	4
352	S5-0P6-004-090	LEVER, CLUTCH ACTUA(8)	1	513	S2-A32-700-540	W, 3.1-7.0-T0.5	2
353	S5-0P3-001-120	SLIDE, LOUDING 2	1	514	S2-A40-800-540	W, 4.3-8.0-T0.5	1
354	S5-0P6-004-230	CAM 2 JS	1	515	S1-0B1-261-440	SCREW, WASHER 2.6-14	1
355	S5-0A6-000-990	MAIN BRAK LEVER 3 ASS'Y	1	516	S9-114-000-000	SCREW, M2-3	2
356	S5-0A3-000-490	GEAR LOAD S ASS'Y	1	517	S9-107-000-000	SCREW, M3*6	1
357	S5-0A3-000-500	GEAR LOAD T ASS'Y	1	518	S3-CST-350-500	CS, RING 3.5	2
358	S5-0P8-001-910	LOUD GEAR SPR	2	519	S3-ETW-300-600	E, RING 3.0	1
359	S5-0P8-002-450	SPRING, AZIMUTH 2	1	520	S1-17B-268-040	SCREW, VT2+2.6-8	1
				521	87-067-099-010	PW, 2.6-6-T0.25	4
360	S1-074-306-020	SCREW, M3-6	1	522	S1-0A1-235-040	SEMS A M2.3-5	2
361	S1-461-30A-310	SCREW, U+3-13	1	523	87-651-071-410	VIT+2.6-4	1
362	S5-0P5-000-100	ADJ NUT	1	524	87-721-095-410	QT2+3-8	1
363	S5-0P8-001-890	FLOUT LOUD LEVER SPR	1				
364	S5-0P6-003-190	PULLEY, LOAD MOTOR(8)	1	550	87-067-167-010	PW, 3.1-5.4-T0.5	1
365	S5-0P6-003-160	BELT, REEL(8)	1	551	87-251-075-410	SCREW, U+2.6*10	1
366	S5-0A4-000-880	GUIDE, ROLLER ASS'Y	1	552	87-651-034-410	UIT+2-5	1
367	S5-0P6-003-150	BELT, FRONT LOAD(8)	1				
368	S5-0P0-002-850	CS, RING 2.6-5.4-T0.1	1	CD2002	----	CORD JUMPER 2L09060	1
369	S5-0P0-002-620	WORM, BRKT 3	1	CD5003	----	CONN, 8722056	1
370	87-841-095-410	SCREW, TAP(S)U3-8	1				
371	S5-0P8-001-450	SPRING, CAPSTAN BRAKE	1	CY1001	----	CONN PCB SIDE 9117S-1	1
372	S5-0A6-001-400	CAPSTAN BRAKE ASS'Y	1				
373	87-261-093-410	SCREW, M3-5	1	H5001	S5-23D-910-190	HEAD AC HVMZA1207A	1
374	S5-0P8-002-510	SPR, LEVER REC	1	H5002	S5-43D-020-060	HEAD, FE HVFHF0029A	1
375	S5-0A4-001-040	TENSION ARM 2 ASS'Y	1				
376	S5-0P6-003-980	STOPPER T2 ARM	1	△ L1301	S2-BH0-000-060	MAGNET JTM1012-01	1
377	S5-0A2-000-580	HOLDER G, JSA ASS'Y	1	△ M101	S5-96P-580-080	MOTOR, LOAD MXN-13FB	1
378	S5-0P2-001-980	SPACER IDLER	1	△ M2001	S5-10S-980-240	CAPSTAN UNIT F2QT802	1
379	S5-0P6-003-960	LEVER JOG 1	1	△ M2003	S5-89S-110-070	MOTOR, E20EL93	1
380	S5-0P6-004-060	LEVER JOG 3	1	PCB550	----	DECK PCB ASS'Y	VE3597 1
381	S5-0P6-004-180	LEVER JOG 2	1				
382	S5-0P8-002-340	SPRING JOG LEVER	1	Q1310	S0-023-001-400	PHOTO, SPI-315-04	1
383	S5-0P8-002-290	SPRING T2 ARM	1				
384	S5-0P6-004-570	ARM, S-B BRAKE	1	SW102	S5-20U-440-020	SW, ROTARY SRZZ0B0	1
				SW103	S5-012-110-010	SW, PUSH SPPB51096A	1
401	S5-0P9-004-300	RING, GEAR(L)	1	△ UN4001	S4-A20-2A5-000	CYLINDER ASS'Y A4A202A500	1
402	S5-0P8-001-750	SPR, RING GEAR(L)	1				

MECHANICAL REPLACEMENT PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Q'TY
601	----	CABINET,FRONT ASS'Y	1
602	S0-1WP-J05-040	CABI,FRONT	1
603	S1-1WP-D02-450	PLATE,DISPLAY	1
604	----	SH,LEG	2
605	----	CUSHION,LEG	2
606	S2-300-054-210	PLATE,LED	1
607	----	SPRING,EARTH FRONT	1
608	S2-344-900-130	BADGE,BRAND	1
609	S1-2WP-J03-010	FLAP	1
610	S4-3WK-A00-120	SPR,FLAP	1
611	S0-2US-S00-200	CABI, TOP	1
612	S4-890-1A6-500	FRONT LOAD UNIT(FL-6B)	1
613	S5-0P6-004-380	BELT,FRONT LOAD 2	1
614	----	SHEET,SHIELD	1
615	S8-8JS-E00-180	PULLEY SHAFT	1
616	S7-1WP-A01-770	PLATE,JACK	1
617	----	SPRING,EARTH M-PCB	1
618	S5-0P6-004-480	HOLDR,LED	1
619	S5-0P6-004-510	HOLDR,START SENSOR	1
620	S5-0P6-004-490	HOLDR,END SENSOR	1
621	----	LID,HI-FI AMP SHIELD	1
622	----	CASE,HI-FI AMP SHIELD	1
623	----	HEAT SINK	1
624	----	SHEET,RATING	1
625	----	PLATE,DECK EARTH	1
626	----	PLATE,TRANS,EARTH	1
627	S0-2UP-A00-890	CABI,INSIDE	1
628	S1-5WP-A00-100	HOLDER,CLOCK	1
629	----	PLATE,BOTTOM	1
630	----	SHEET,PCB	1
631	----	HOLDER,PCB	1
632	----	MINI CARD SPACER MPS-06-0	1
633	S1-3WP-A00-440	COVER,JACK	1
634	----	CLAMP,CORD NO,PEC-034-0	3
635	S3-5WP-D02-900	BUTTON,PLAY BACK	1
636	S3-5WP-D02-930	BUTTON,HOLDER	1
637	S3-5WP-D02-890	BUTTON,DECK	1
638	----	POP LABEL	1
639	S3-3WP-A00-090	KNOB,SLIDE	1
640	S5-3WU-A00-280	SPR,EARTH P-TOP	1
641	80-JA4-201-010	FC SHEET 10*10*T8	2
701	87-841-095-410	TAP(P)3-8	4
702	87-641-094-410	UIT+3-6	3
703	87-251-094-410	SCREW,U+3-6	2
704	87-653-096-410	TAP(B0)3-10	6
705	S1-175-40A-020	SCREW,TRUSS 4-10	6
706	87-343-172-010	TAP(B0)V+4-12	3
707	87-841-095-410	UT2+3-8	5
708	87-741-096-410	TAP(B0)3-10	1

ACCESSORY REPLACEMENT PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Q'TY
---	S4-A21-201-010	INSTRUC.BOOK(HVFX1500Z)	1
CD6004	S6-CPB-A50-010	CORD RCA PIN 06CPBA5001	1
CD6002	S6-CZL-050-150	RF CABLE FTZD-2070	1
TM601	S7-660-AN0-2B0	RC,RC-FX1500	1

サービス技術ニュース	
番 号	連絡内容
G — —	
G — —	
G — —	

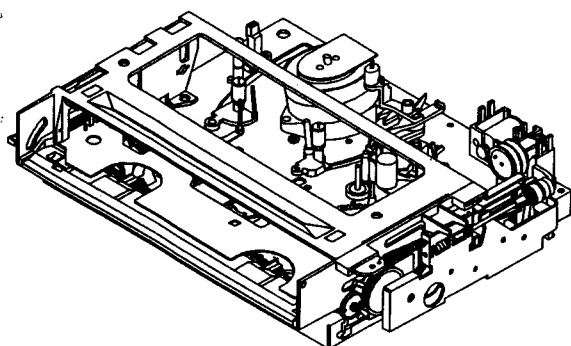
アイワ株式会社
AIWA CO.,LTD.

727070

Tokyo Japan

aiwa

OVD - 4A



VIDEO MECHANISM

• TYPE. English

BASIC NAME	DERIVATION						
	NO.	NAME					
OVD - 4A	A	- 100C					
	B						
	C						

For different versions of mechanism that may be introduced since the issue of this manual, only the new or modified points will be discussed.

STANDARD MAINTENANCE

1. SERVICE SCHEDULE

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Parts Name \ Time	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head	■	■	■	■	■	
Reel Belt		■		●		Clean the rubber, and parts which the rubber touches.
Front Loading Belt		■		●		
Pinch Roller	■	■	■	■	■●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band Ass'y					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■●	■	■●	■●	Clean the head

● : Replace, ■ : Clean

2. CLEANING

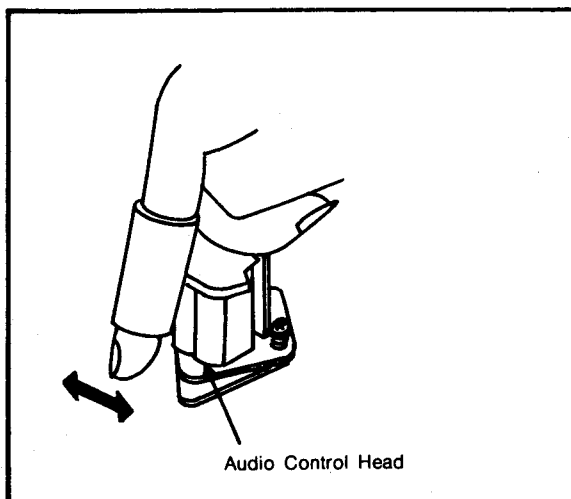
NOTE

- After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

- Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the Audio Control Head by wiping it horizontally.

Clean the Full Erase Head in the same manner.
(Refer to the figure below)



2.TAPE RUNNING SYSTEM

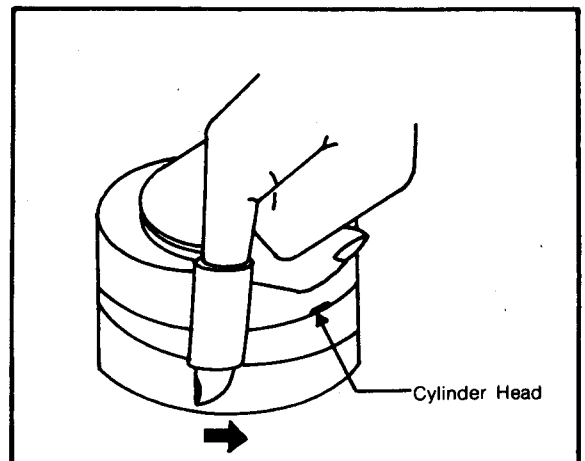
- When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

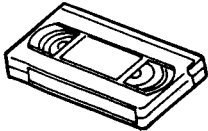
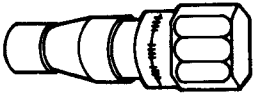
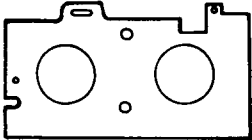
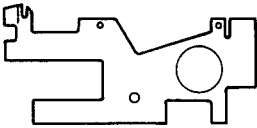
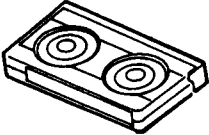
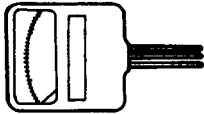
- Put on a glove (thin type) to avoid touching the Upper Drum and Lower Drum with bare hand.
- Put a few drops of alcohol on a head cleaning cloth or the chamois skin, and by slightly placing it against the Head Tip, allow the Upper Drum to turn counter-clockwise.

Note:

- The video head is a very hard material, but since it is very thin, avoid cleaning it vertically.
- Wait for the cleaned part to dry out, before operating the unit.
- Do not reuse stained cloth or chamois skin.



SERVICE JIG AND TOOLS

VHS Alignment Tape JG001 (See table below) 	JG002B Adapter JG002F Dial Torque Gauge (60~600gr/cm) JG002G (100~1200gr/cm) 	JG005 Post Adjustment Screwdriver 	JG021 X-Nut Adjustment Screwdriver 
JG022 Master Plane 	JG024 Reel Disk Height Adjustment Jig 	JG036 Tension Post Adjustment Jig 	JG100 Torque Tape (VHT-103) 
Tentelometer 			

Part No.	Remarks																																														
JG001	Choose the test tapes specified for the mechanism from the table below. (For DERIVATION No., see the cover page of this manual.) Tapes in parentheses can also be used. <table><tr><th colspan="2">DERIVATION No.</th><th>A</th><th>B</th><th>C</th><th></th><th></th></tr><tr><td rowspan="2">Adjustment</td><td>Mechanism Type</td><td>PAL SP 2 Head</td><td>PAL SP/LP 2 Head</td><td>NTSC SP/LP/EP 2 Head</td><td></td><td></td></tr><tr><td>FM Envelope</td><td>TTV-P2</td><td>TTV-P2L</td><td>TTV-N2E (TTV-N12)</td><td></td><td></td></tr><tr><td rowspan="3">AC Head</td><td>Tilt</td><td colspan="4">Blank Tape</td><td></td></tr><tr><td>Height</td><td>TTV-P1</td><td>TTV-P1 (TTV-P1L)</td><td>TTV-N1 (TTV-N12) (TTV-N1E)</td><td></td><td></td></tr><tr><td>Azimuth</td><td>TTV-P2</td><td>TTV-P2</td><td>TTV-N2</td><td></td><td></td></tr><tr><td colspan="2">X Value</td><td>TTV-P2</td><td>TTV-P2 TTV-P2L</td><td>TTV-N2 TTV-N2E (TTV-N12)</td><td></td><td></td></tr></table>	DERIVATION No.		A	B	C			Adjustment	Mechanism Type	PAL SP 2 Head	PAL SP/LP 2 Head	NTSC SP/LP/EP 2 Head			FM Envelope	TTV-P2	TTV-P2L	TTV-N2E (TTV-N12)			AC Head	Tilt	Blank Tape					Height	TTV-P1	TTV-P1 (TTV-P1L)	TTV-N1 (TTV-N12) (TTV-N1E)			Azimuth	TTV-P2	TTV-P2	TTV-N2			X Value		TTV-P2	TTV-P2 TTV-P2L	TTV-N2 TTV-N2E (TTV-N12)		
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Adjustment	Mechanism Type	PAL SP 2 Head	PAL SP/LP 2 Head	NTSC SP/LP/EP 2 Head																																											
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	Azimuth	TTV-P2	TTV-P2	TTV-N2																																											
X Value		TTV-P2	TTV-P2 TTV-P2L	TTV-N2 TTV-N2E (TTV-N12)																																											
JG002F	Playback Take Up Torque																																														
JG002G	Fast Forward Torque, Rewind Torque, Brake Torque (Take up Reel/Supply Reel)																																														
JG005	Guide Roller Adjustment																																														
JG021	X-Nut Adjustment																																														
JG022/JG024	Reel Disk Height Adjustment																																														
JG036	Tension Post Adjustment																																														
JG100	Playback Back Tension Torque																																														

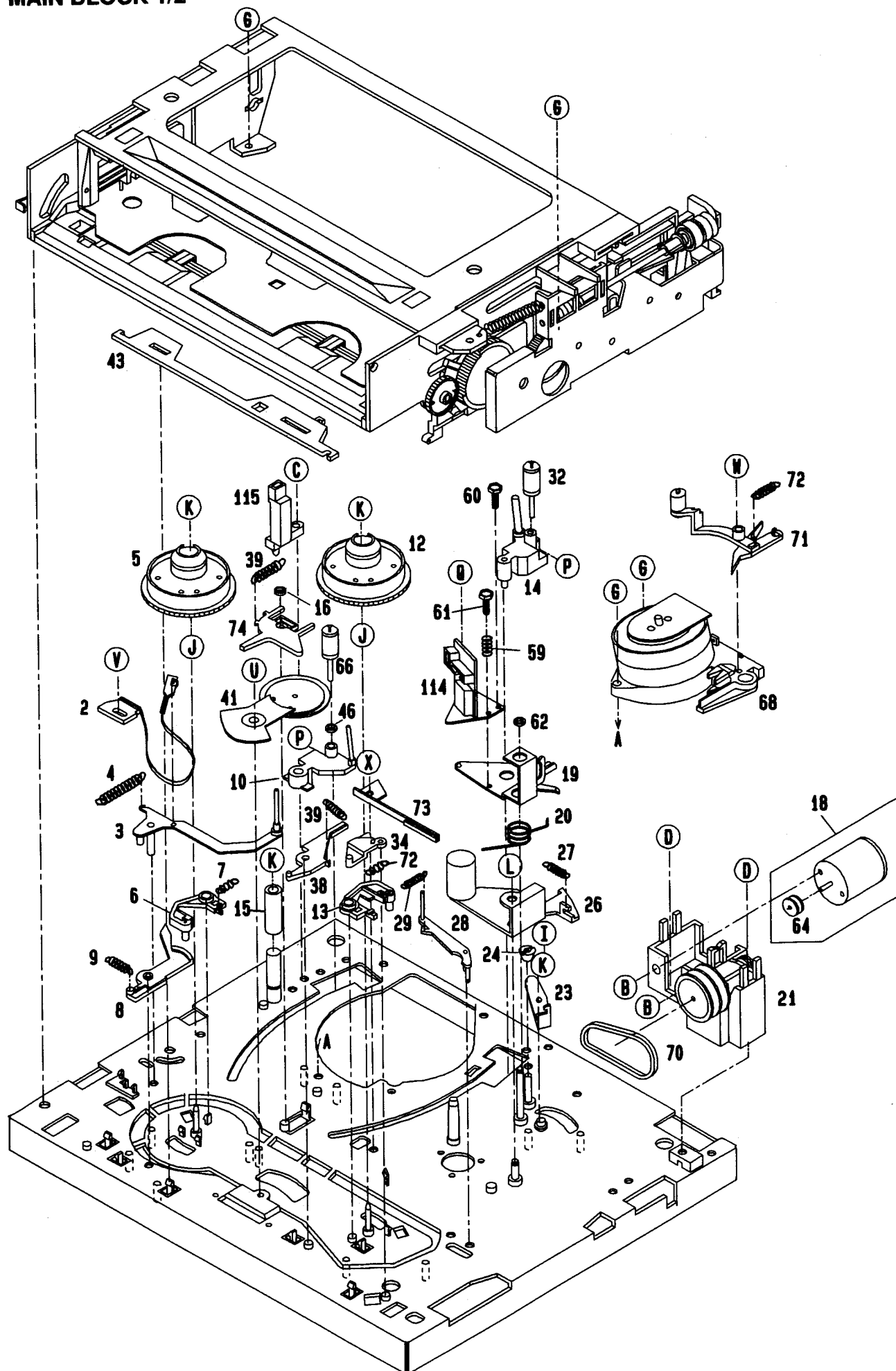
DISASSEMBLY PARTS LIST

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

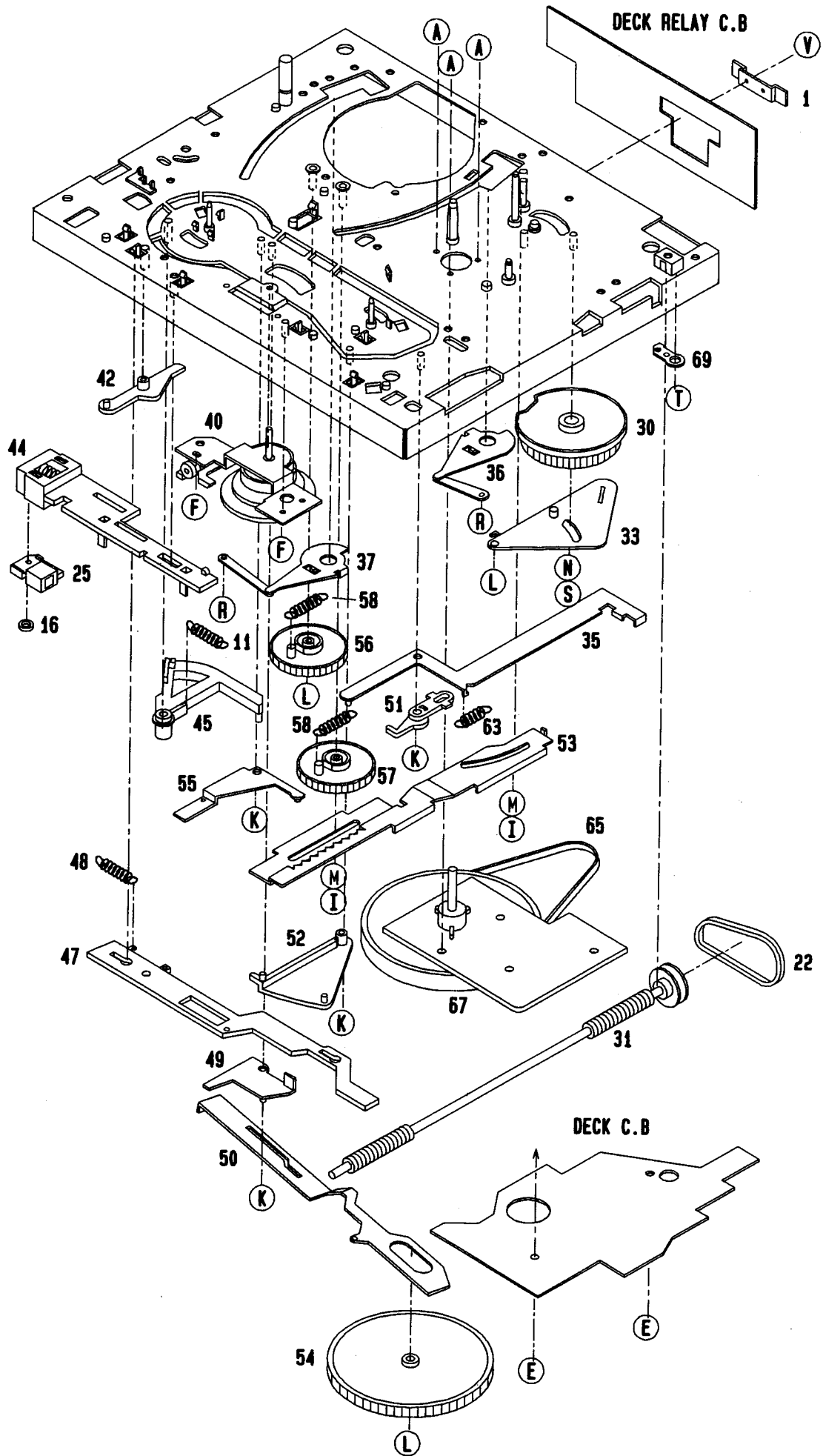
REF. NO	PART NO.	カナ NO.	DESCRIPTION	REF. NO	PART NO.	カナ NO.	DESCRIPTION
1	S6-2WS-A00-150		PLATE, DECK ANGLE	71	S5-0A4-001-120		ARM, AHC UNIT
2	S5-0A6-001-390		TENSION, BAND ASS'Y	72	S5-0P8-002-360		SPR, AHC 1
3	S5-0A4-000-770		TENTION ARM ASS'Y	73	S5-0A6-001-520		BRAKE, TB 2 ASSY
4	S5-0P8-001-410		TENTION ARM SPR	74	S5-0P6-004-570		ARM, S-B BRAKE
5	S5-0A2-000-360		S REEL ASS'Y	76	S5-0P9-004-300		RING GEAR(L)
6	S5-0A6-001-360		MAIN BRAKE S ASS'Y	77	S5-0P8-001-750		SPR, RING GEAR(L)
7	S5-0P8-001-870		MAIN BRAK SPR	78	S5-0P9-005-250		SYNCHRO GEAR
8	S5-0P6-004-460		ARM, S-S BRAKE 1	79	S5-0P9-004-510		FLAP LEVER 2
9	S5-0P8-001-640		SS BRAK SPR	80	S5-0P9-004-400		SENSOR COVER
10	S5-0A4-001-080		BASE, S INCLINED ASS'Y	81	S5-0A9-001-280		TOP BRKT ASS'Y
11	S5-0P8-001-900		MAIN BRAK SPR 3	82	S5-0P9-004-580		LOCKER
12	S5-0A2-000-350		T REEL ASS'Y	83	S5-0P8-001-540		LOCKER SPR
13	S5-0A6-001-350		MAIN BRAKE T ASS'Y	84	S5-0P9-005-350		CASS, SIDE(L)
14	S5-0A4-001-090		BASE, T INCLINED ASS'Y	85	S5-0P9-003-540		PACK SPR
15	S5-0P6-004-320		ROLLER, IMPEDANCE	86	S5-0P9-005-360		CASS, SIDE(RA)
16	S5-0P0-002-850		CS, RING 2. 6-5. 4-T0. 1	87	S5-0P9-004-740		REMOVING 2
17	S6-850-1H8-040		SCREW, TAP(S)U3-8	88	S5-0P8-001-980		SPR, REMOVING 2
18	S5-96P-480-010		MOTOR, LOAD MXN-13FB09C (M101)	89	S5-0A9-001-220		CASS, HOLDER SUB ASS'Y
19	S5-0P5-000-420		AC HEAD BASE 2	90	S5-0P9-002-670		SYNCHRO SHAFT
20	S5-0P8-002-330		SPR, AC HEAD BASE 2	91	S5-0P9-005-290		TAPE GUIDE PIECE
21	S5-0A6-001-480		LOAD MOTOR BOX A A'Y	92	S5-0P9-005-320		BRKT, SIDE RIA
22	S5-0P6-003-170		BELT, LOAD MOTOR	93	S5-0P9-004-160		FRONT LOUD SWITCH LEVER
23	S5-0A5-000-080		PINCH ROLLER LEVER ASS'Y	94	S5-0P8-001-580		FRONT LOUD SW LEVER SPR
24	S5-0P6-004-590		NUT, ADJUST X2	95	S5-0A9-001-290		SIDE BRAKE R2 ASS'Y
25	S2-BH0-000-060		ELECTRO MAGNET (L1301)	96	S5-0P9-004-310		RING GEAR(R)
26	S5-0A4-000-730		PINCH ROLLER ARM ASS'Y	97	S5-0P8-001-530		CLUCH GEAR SPR
27	S5-0P8-001-490		PINCH ROLLER ARM SPR	98	S5-0P8-001-810		RING GEAR SPR R2
28	S5-0A4-001-050		LIMIT, POST ARM ASS'Y	99	S5-0P9-004-320		CLUCH GEAR
29	S5-0P8-001-480		LIMIT, POST ARM SPR	100	S5-0P9-004-170		LOCK LEVER
30	S5-0P6-003-050		CAM, 1	101	S5-0P8-001-590		LOCK LEVER SPR
31	S5-0A6-001-140		WORM, ASS'Y	102	S5-0P9-004-380		WHEEL
32	S5-0A4-001-020		G-ROLLER ASS'Y	103	S5-0P9-004-350		CLUCH LEVER
33	S5-0A3-000-310		LOUD LEVER 2 ASS'Y	104	S5-0P9-004-340		SLIDE, LEVER
34	S5-0P6-004-540		LEVER, SUB BRAKE	105	S5-0P8-001-800		SLIDE, LEVER SPR 2
35	S5-0A9-000-830		FRONT LOUD LEVER ASS'Y	106	S5-0P9-005-310		JOINT PULLEY 2
36	S5-0A3-000-300		LOUD ARM ASS'Y(TU)	107	S5-0A9-000-890		WORM, ASS'Y
37	S5-0A3-000-290		LOUD ARM ASS'Y(SUP)	108	S5-0P9-004-500		OPENER A
38	S5-0A6-001-370		TS BRAKE ASS'Y	109	S5-0P8-001-720		OPENER SPR A
39	S5-0P8-001-650		TS BRAK SPR	110	S4-510-1A6-900		HLD, CASS ASS'Y
40	S5-0A2-000-430		CLUCH ASS'Y	111	S4-480-2A6-400		BRKT, SIDE R ASS'Y
41	S5-0A2-000-380		IDLER JS ASS'Y	112	S5-0P9-005-230		FRONT LOUD EARTH SPR
42	S5-0P6-004-100		LEVER, MAIN BRAKE 1	113	S5-0P8-002-300		LOCKER(R) SPR
43	S5-0P6-003-100		ACTUATOR, SUB BRAKE	114	S5-330-910-020		HEAD, AUDIO (H5001)
44	S5-0A6-001-290		CLUCH ACTUATOR JS A'Y	115	S5-43V-020-050		HEAD, FE (H5002)
45	S5-0P6-003-030		TENTION LEVER	A	S1-071-266-040		UT2+2. 6-6
46	S5-0P4-003-260		O-RING	B	S1-021-304-040		V+3-4
47	S5-0P6-003-810		SLIDE, MAIN BRAKE	C	S1-072-268-040		VT2+2. 6-8
48	S5-0P8-001-880		MB SLIDE SPR	D	S1-072-30A-440		TAP(S)V+3-14
49	S5-0A6-001-090		MB LEVER 2 ASS'Y	E	S1-072-30A-640		UT2+3-16
50	S5-0A6-001-080		TENTION ARM SLIDE ASS'Y	F	S1-072-306-040		SCREW, TAP(S) BIND
51	S5-0P6-004-160		LEVER, LIMITER POST	G	S1-072-308-040		SCREW, TAP(S) BIND
52	S5-0P6-004-090		LEVER, CLUTCH ACTUATOR	H	S1-102-308-040		UT2+3-8
53	S5-0P3-001-120		SLIDE, LOUDING 2	I	S3-ETW-250-000		E, RING 2. 5
54	S5-0P6-003-040		CAM, 2	J	S2-031-54B-3N0		PW. 3. 1-5. 4-0. 13
55	S5-0A6-000-990		MAIN BRAK LEVER 3 ASS'Y	K	S2-P25-550-4N0		PW. 2. 5-5. 5-0. 4
56	S5-0A3-000-430		GEAR LOADING S ASS'Y	L	S2-P30-600-5N0		PW. 3. 1-6-0. 5
57	S5-0A3-000-440		GEAR LOADING T ASS'Y	M	S2-A32-700-540		WASHER 3. 1-7. 0-T0. 5
58	S5-0P8-001-910		LOUD GEAR SPR	N	S2-A40-800-540		WASHER 4. 3-8. 0-T0. 5
59	S5-0P8-002-450		SPR, AZIMUTH 2	P	S1-5DJ-203-020		SCREW, M2-3
60	S1-44J-306-040		SCREW, M3-6	Q	S1-45J-306-010		SCREW, M3*6
61	S1-461-30A-310		SCREW, U+3-13	R	S3-CST-350-500		CS, RING 3. 5
62	S5-0P5-000-100		ADJ NUT	S	S3-ETW-300-600		E, RING 3. 0
63	S5-0P8-001-890		FLONT LOUD LEVER SPR	T	S1-17B-268-040		SCREW, VT2+2. 6-8
64	S5-0P6-003-190		PULLEY, LOADING MOTOR	U	87-067-099-010		PW. 2. 6-6-0. 25
65	S5-0P6-003-160		BELT, REEL	V	S1-471-308-040		VIT+3-8
66	S5-0A4-000-880		GUIDE, ROLLER ASS'Y	W	S1-071-261-440		VIT+2. 6-14
67	S5-10P-980-200		CAPSTAN, UNIT DFX67D4 (M2001)	X	S1-071-264-040		VIT+2. 6-4
68	S4-ZZ0-1A5-000		CYLINDER UNIT ASS'Y(UN4001)	a	87-067-167-010		PW. 3. 1-5. 4-0. 5
69	S5-0P0-002-620		WORM, BRAKET 3	b	S6-817-CGA-040		SCREW, U+2. 6*10
70	S5-0P6-003-150		BELT, FRONT LOAD	c	S1-072-205-040		UIT+2-5

EXPLODED VIEW

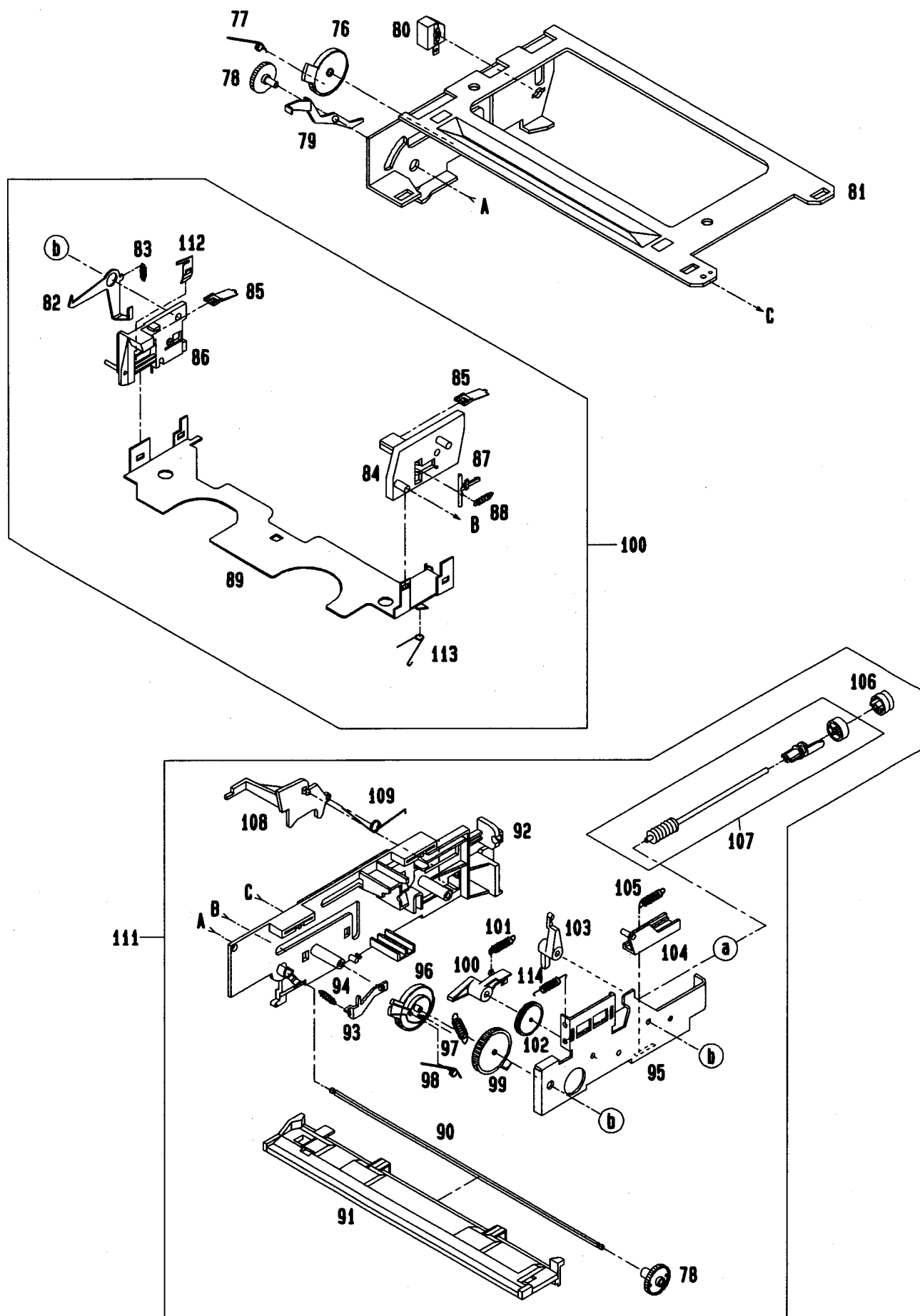
MAIN BLOCK 1/2



MAIN BLOCK 2/2



FRONT LOADING BLOCK

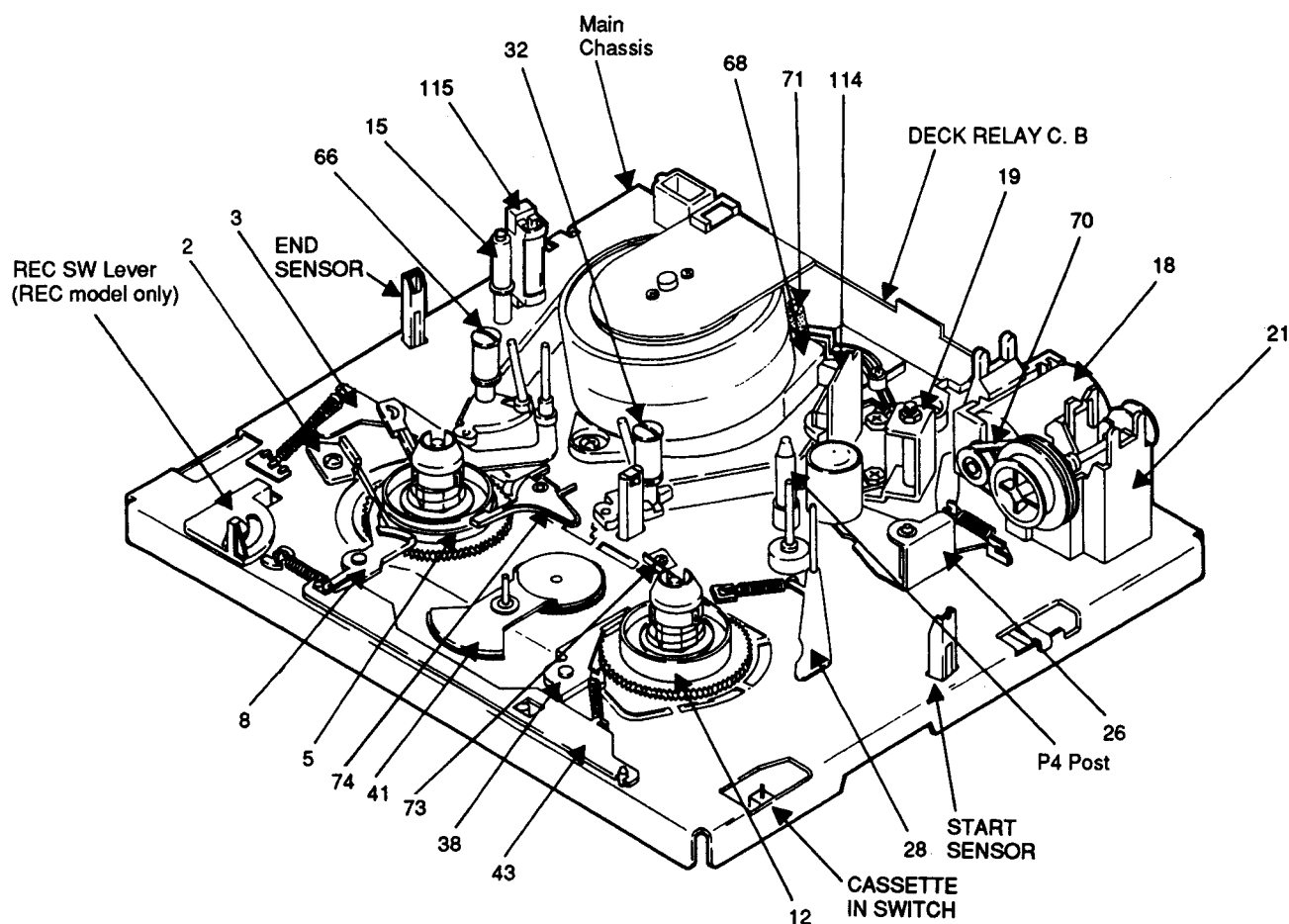


ASSEMBLY

1. ASSEMBLY PART LOCATION

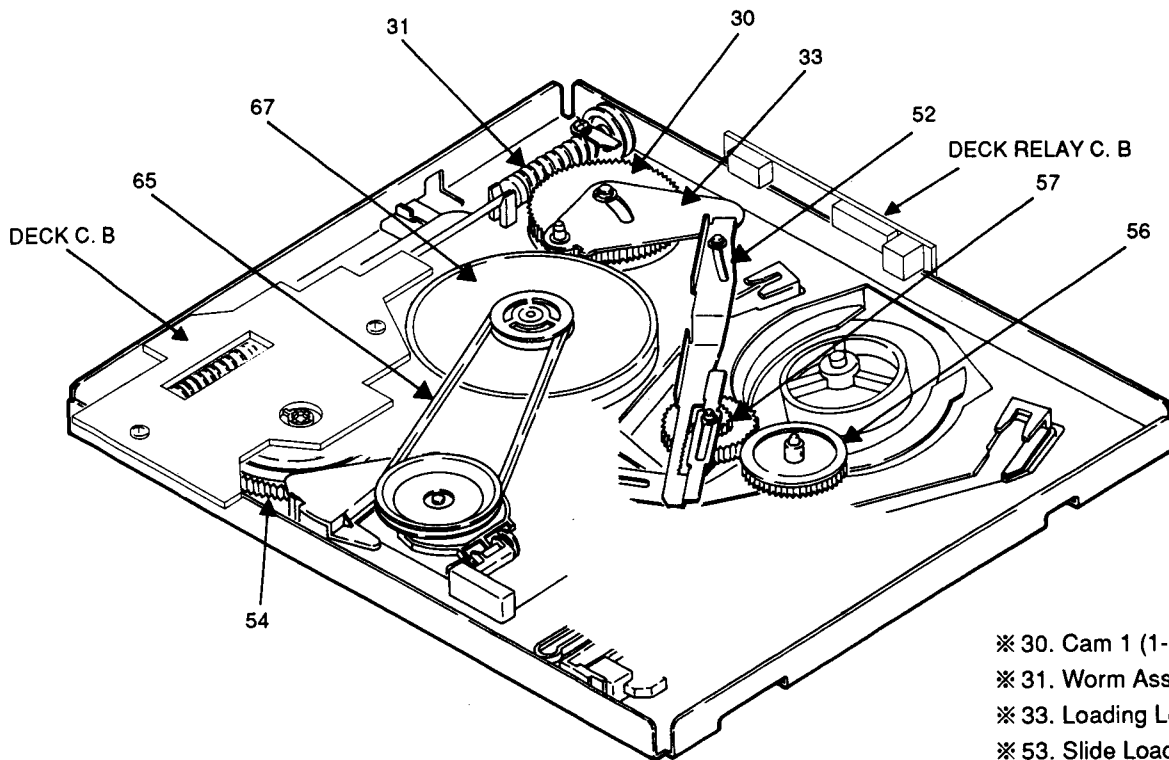
The parts marked ※ are covered in this manual for their disassembly/reassembly procedures and notes. The numbers in parentheses indicate the item numbers.

DECK PART (TOP VIEW)



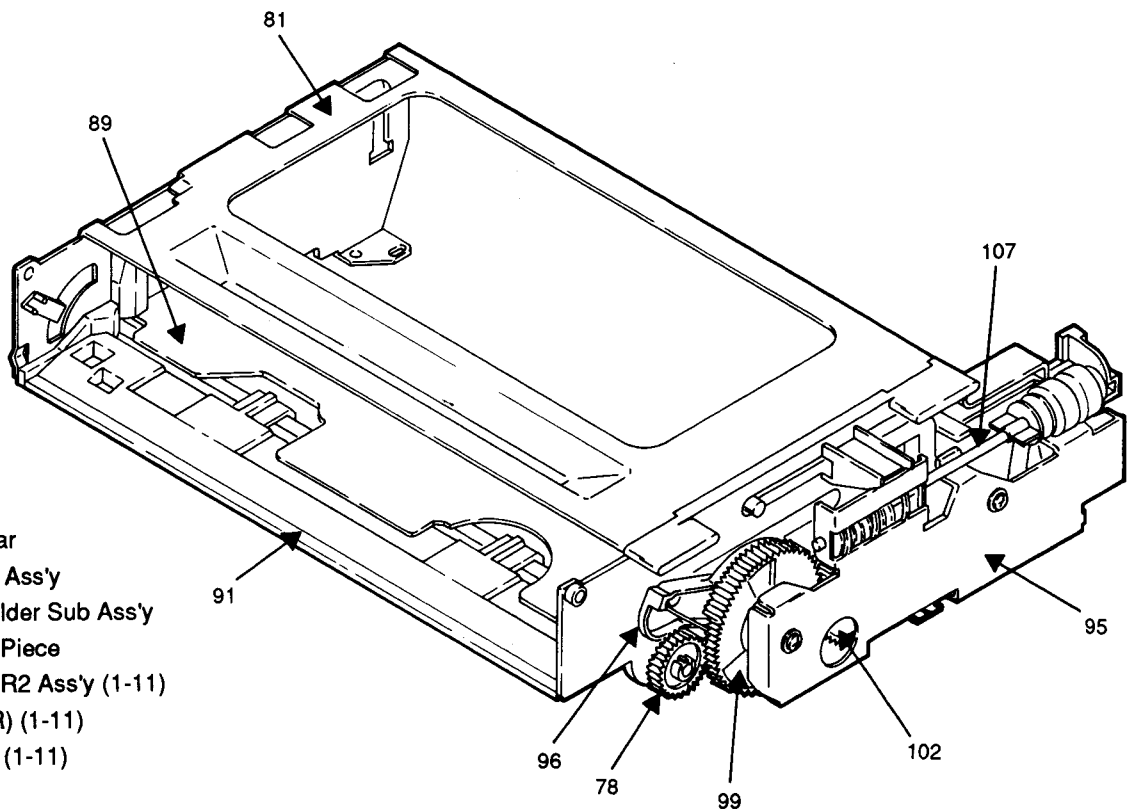
- | | |
|-------------------------------------|---------------------------------------|
| ※ 2. Tension Band Ass'y (1-2) | 38. TS Brake 2 Ass'y |
| 3. Tension Arm Ass'y | ※ 41. Idler Ass'y(1-1) |
| ※ 5. Reel Disk S Ass'y(1-3) | ※ 43. Actuator Sub Brake(1-1) |
| ※ 8. SS Brake Arm(1-2) | 66. Guide Roller Ass'y |
| ※ 12. Reel Disk T Ass'y (1-3) | ※ 68. Cylinder Unit (1-7) |
| 15. P1 Post (ROLLER, IMPEDANCE) | ※ 70. Front Loading Belt (1-5) |
| ※ 18. Loading Motor (1-5) | 71. Auto Head Cleaner |
| 19. A/C Head Base 2 | 73. Brake TB2 Ass'y |
| ※ 21. Loading Motor Box Ass'y (1-5) | ※ 74. Arm S-B Brake |
| ※ 26. Pinch Roller Arm Ass'y (1-6) | ※ 114. A/C Head (1-4) |
| 28. Limiter Post Arm Ass'y | 115. Full Erase Head (REC model only) |
| 32. Guide Roller Ass'y | |

DECK PART (BOTTOM VIEW)



- ※ 30. Cam 1 (1-10)
- ※ 31. Worm Ass'y (1-9)
- ※ 33. Loading Lever 2 Ass'y (1-10)
- ※ 53. Slide Loading 2 (1-10)
- ※ 54. Cam 2 (1-10)
- 56. Loading Gear S Ass'y
- 57. Loading Gear T Ass'y
- ※ 65. Reel Belt (1-8)
- ※ 67. Capstan DD Unit (1-9)

FRONT LOADING UNIT



- 78. Synchro Gear
- 81. Top Bracket Ass'y
- 89. Cassette Holder Sub Ass'y
- 91. Tape Guide Piece
- ※ 95. Side Bracket R2 Ass'y (1-11)
- ※ 96. Link Gear (R) (1-11)
- ※ 99. Clutch Gear (1-11)
- 102. Wheel
- 107. Worm Ass'y

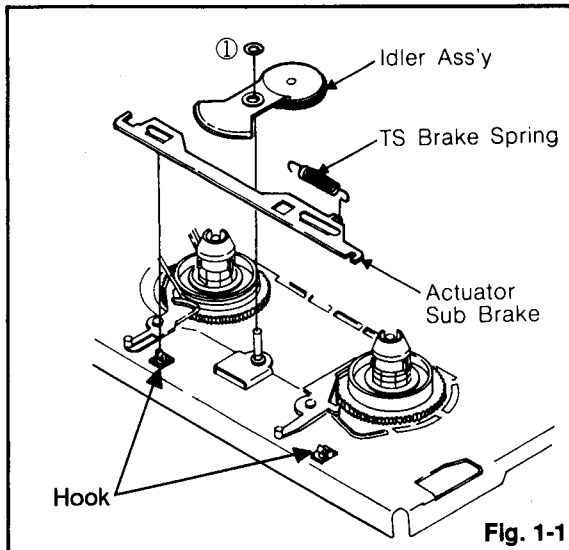
DISASSEMBLY INSTRUCTIONS AND ADJUSTMENT

1. REMOVAL OF DECK PARTS

1-1: ACTUATOR SUB BRAKE / IDLER ASS'Y

(Refer to Fig. 1-1)

1. Remove the polyslider washer ①.
2. Remove the Idler Ass'y.
3. While gently bending the two hooks, remove the TS Break Spring.
4. Remove the Actuator Sub Brake.

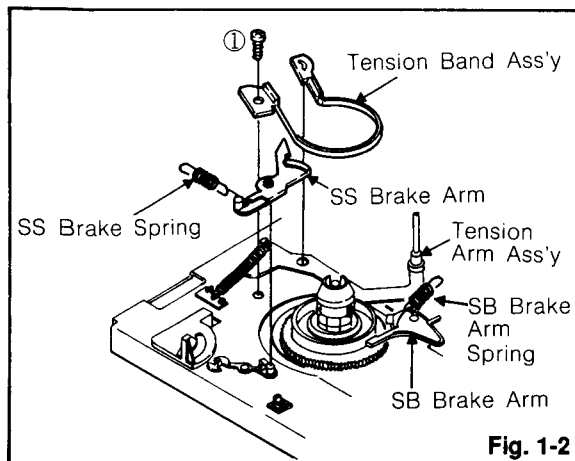


1-2: TENSION BAND (Refer to Fig. 1-2)

1. Referring to the above item 1-1, remove the Actuator Sub Brake.
2. Remove the SS Brake Spring, then remove the SS Brake Arm.
3. Remove the screw ①.
4. Remove the Tension Band Ass'y from the Tension Arm Ass'y.

NOTES

1. Install the Tension Band Ass'y without twisting it.
2. Adjust the placement of the Tension Post.
(Refer to item 2-2 of MECHANICAL ADJUSTMENTS)
3. Adjust and confirm the back tension during playback.
(Refer to item 2-3 of MECHANICAL ADJUSTMENTS)



1-3: REEL DISK (Refer to Fig. 1-2,1-3)

(Reel Disk S Ass'y)

1. Referring to the above item 1-1, remove the Actuator Sub Brake.
2. Remove the SS Brake Spring, then remove the SS Brake Arm.
3. Remove the SB Brake Arm Spring, then remove the SB Brake Arm.
4. Remove the Tension Band Ass'y from the Tension Arm Ass'y.
5. Remove the polyslider washer ①.
6. Pull the Reel Disk S Ass'y upward and replace it.

(Reel Disk T Ass'y)

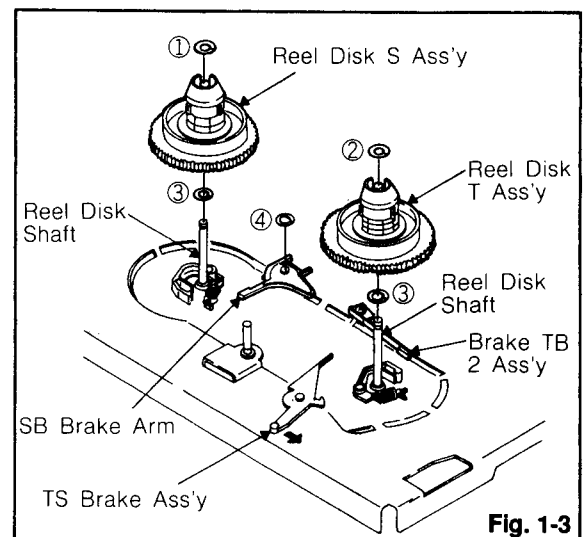
1. Remove the Actuator Sub Brake.
2. Remove the TS Brake Spring.
3. Move the TS Brake Ass'y in the direction of arrow.
4. Remove the polyslider washer ②.
5. Pull the Reel Disk T Ass'y upward and replace it.

NOTES

1. The height adjustment washers ③ are sometimes attached to the back of Reel Disk.
2. Clean the Reel Disk Shaft and put in height adjusting washers ③.
3. Be careful not to damage the Tension Band Ass'y at the time of removal and installation.
4. Be careful not to scratch the Reel Disk Shaft with the polyslider washer or the tool at the time of removal and installation.
5. After oiling (Cosmo Oil Hydro HV100) the Reel Disk Shaft, install the new Reel Disk S Ass'y and Reel Disk T Ass'y again. (If the shaft is not lubricated, unusual sound might be heard in the FF and REW modes.)
6. After installation, check the height of the Reel Disk, and if necessary adjust it.

(Refer to Item 2-1 of MECHANICAL ADJUSTMENTS)

7. After installation, adjust and confirm the tension post position. (Refer to item 2-2 of MECHANICAL ADJUSTMENTS)

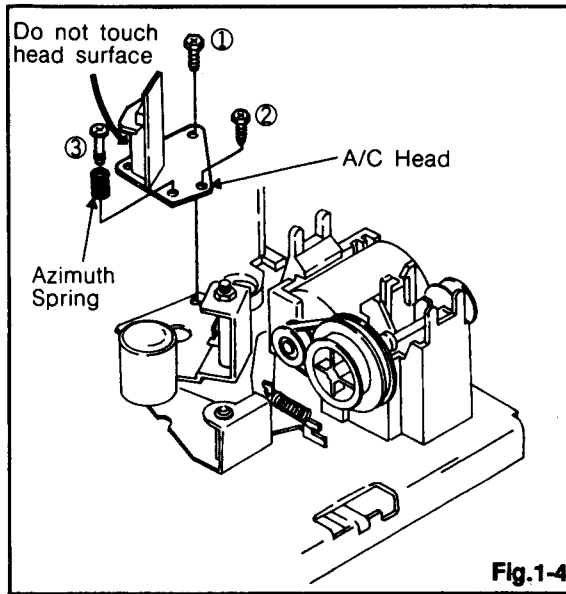


1-4: A/C HEAD (Refer to Fig. 1-4)

1. Disconnect the connector on the A/C Head C.B.
2. Remove the screws ①, ② and ③.

NOTE

Do not touch the heads by any means when replacing the A/C Head.

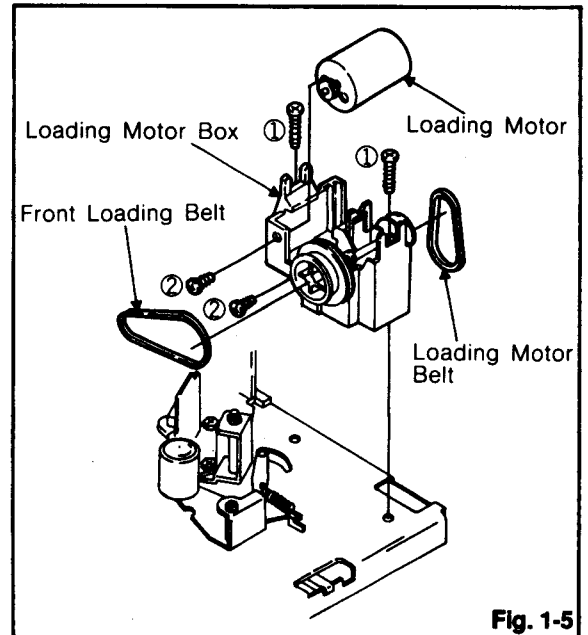


1-5: LOADING MOTOR (Refer to Fig. 1-5)

1. Remove the 2 wires soldered to the Loading Motor.
2. Remove the Loading Motor Belt.
3. Remove the 2 screws ①, then remove the Loading Motor Box.
4. Remove the Front Loading Belt.
5. Remove the 2 screws ②, then lift the Loading Motor upward.

NOTES

1. Clean the pulley by alcohol or the like, when replacing Front Loading Belt and Loading Motor Belt.
2. Avoid getting grease on the Loading Motor Belt and Front Loading Belt.

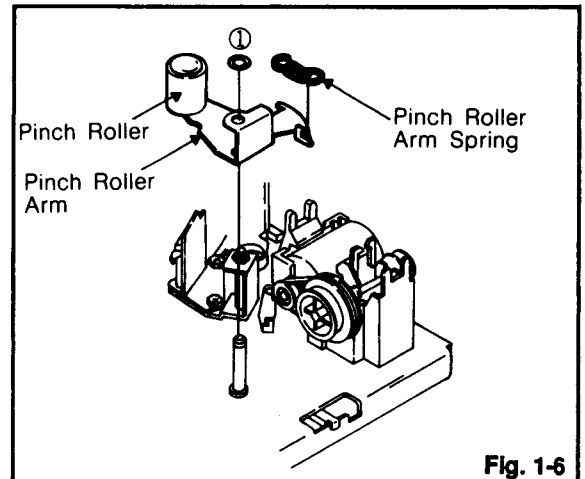


1-6: PINCH ROLLER ARM (Refer to Fig. 1-6)

1. Remove the Pinch Roller Arm Spring.
2. Remove the polyslider washer ①.
3. Remove the Pinch Roller Arm.

NOTE

Do not touch the Pinch Roller. (Use gloves.)



1-7: CYLINDER UNIT (Refer to Fig. 1-7)

1. Disconnect the connector ⑥ from the Connector C.B and the connector ⑤ from the Cylinder Unit.
2. Remove the 3 screws ①, then remove the Cylinder Unit from the Main Chassis.

NOTES

1. Do not touch the surface of the Cylinder Head.
2. After replacement, confirm the following adjustments.
 - a. MECHANICAL ADJUSTMENTS : ITEM 3-2
 - b. ELECTRICAL ADJUSTMENTS : Switching point adjustment
 - c. ELECTRICAL ADJUSTMENTS : PB Y level adjustment

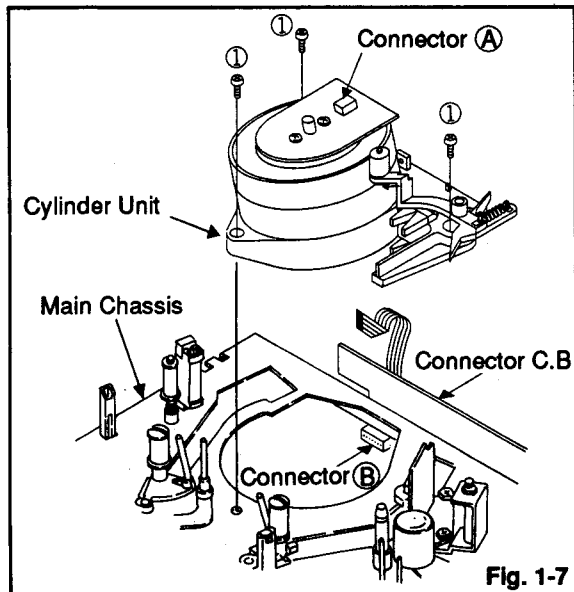


Fig. 1-7

1-8: DECK C.B (Refer To Fig. 1-8)

1. Remove the solder (A) positions, remove the screw ① and screw ②.
2. Remove the connector.
3. Remove the Deck C.B.

NOTES

1. When installing the Deck C.B, place the deck C.B back in position with the Rotary Switch's points (B) and (C) in alignment (eject position). (The Rotary Switch's projection should come into the opening of Cam 2.)

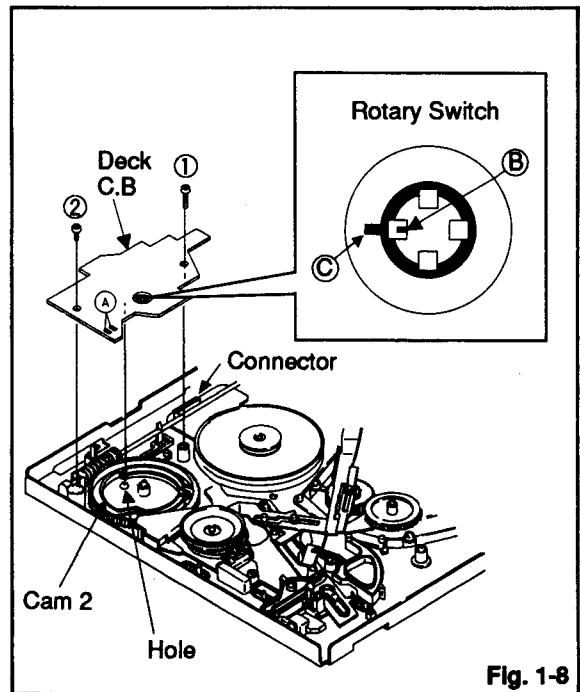


Fig. 1-8

1-9: CAPSTAN DD UNIT (Refer to Fig. 1-9-A, B)

1. Referring to item 1-8, remove the Deck C.B.
2. Remove the 3 screws ①. (Refer to Fig. 1-9-A)
3. Remove the Loading Motor Belt.
4. Remove the screw ①, then remove the Bracket Worm 3. (Refer to Fig.1-9-B)
5. Remove the Worm.
6. Remove the Capstan DD Unit.

NOTES

1. Do not bend the Limiter Post.
2. Use the specified screw held to the Capstan DD Unit.
3. Install in the position where the Capstan DD Unit C.B gets up to the (A) position.

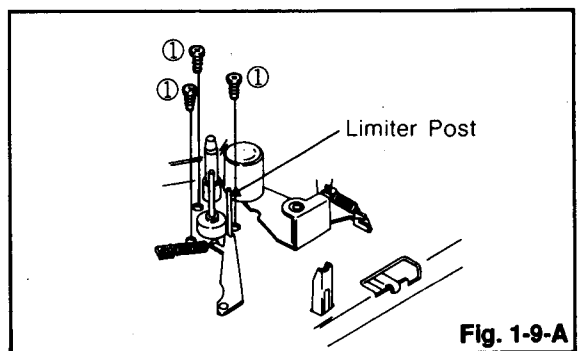


Fig. 1-9-A

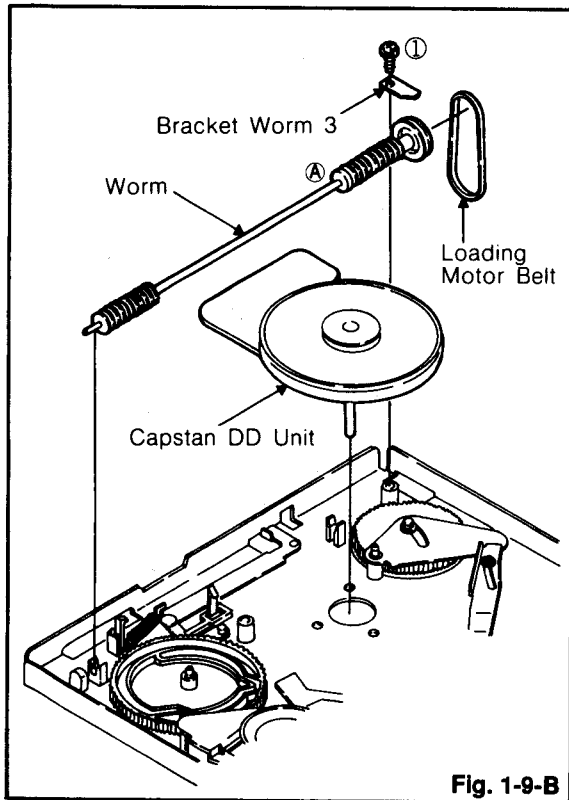


Fig. 1-9-B

1-10: CAM 1 / CAM 2

(Refer to Fig. 1-10-A, B, C)

1. Referring to item 1-8, remove the Deck C.B.
2. Remove the E-ring ①, then remove the washer ②.
3. Remove the E-ring ③, then remove the washer ④.
4. Remove the Slide Loading 2.
5. Remove the E-ring ⑤, then remove the washer ⑥.
6. Remove the polyslider washer ⑦.
7. Remove the Loading Lever 2 Ass'y then remove the Cam 1.
8. Remove the polyslider washer ⑧, then remove the Lever Clutch Actuator.
9. Remove the polyslider washer ⑨, then remove the Cam 2.

NOTE ON REASSEMBLY

Be sure to install in the EJECT position.
(Refer to Fig. 1-10-B, C)

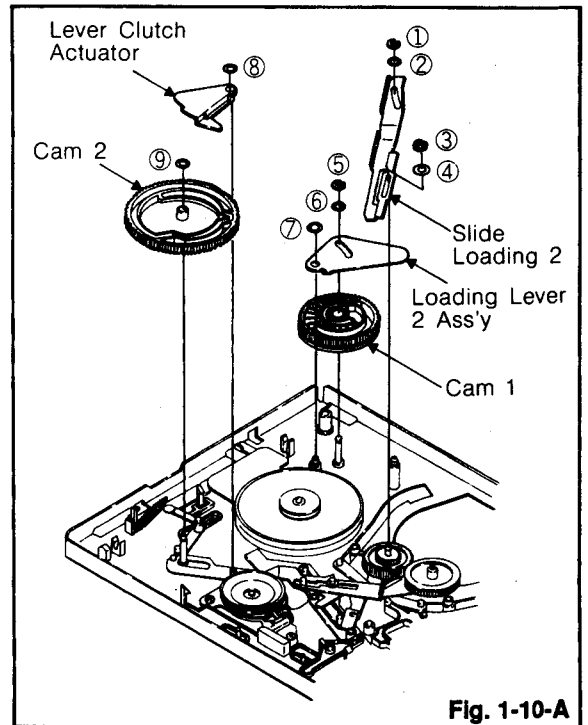


Fig. 1-10-A

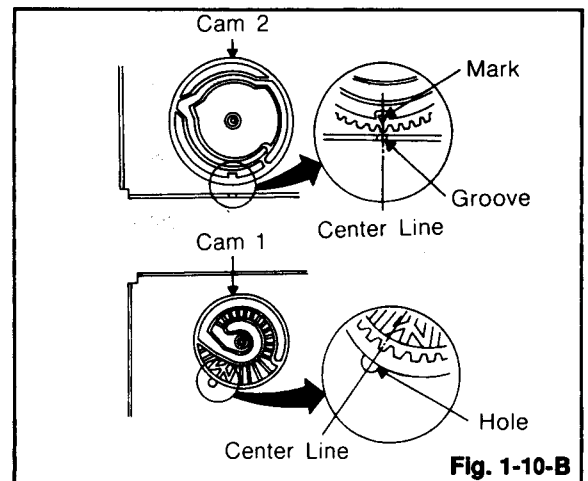


Fig. 1-10-B

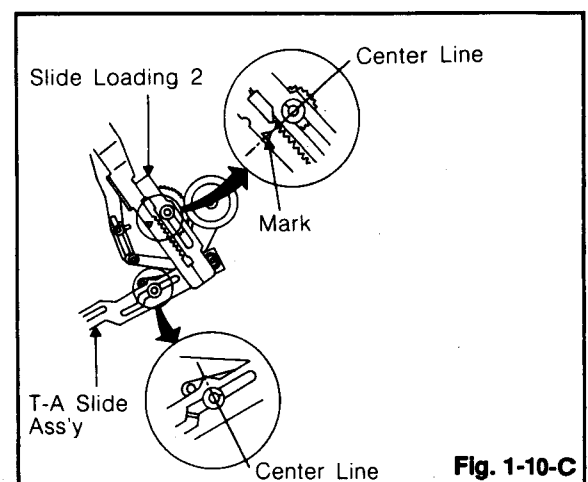


Fig. 1-10-C

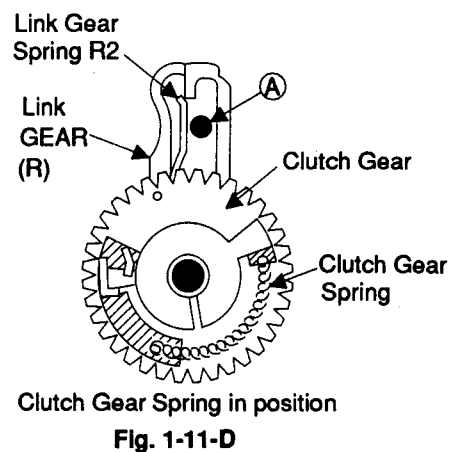
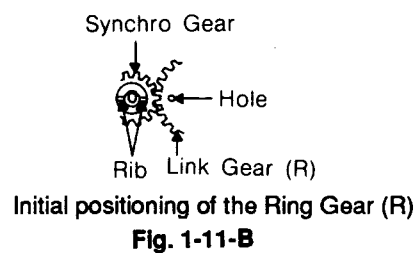
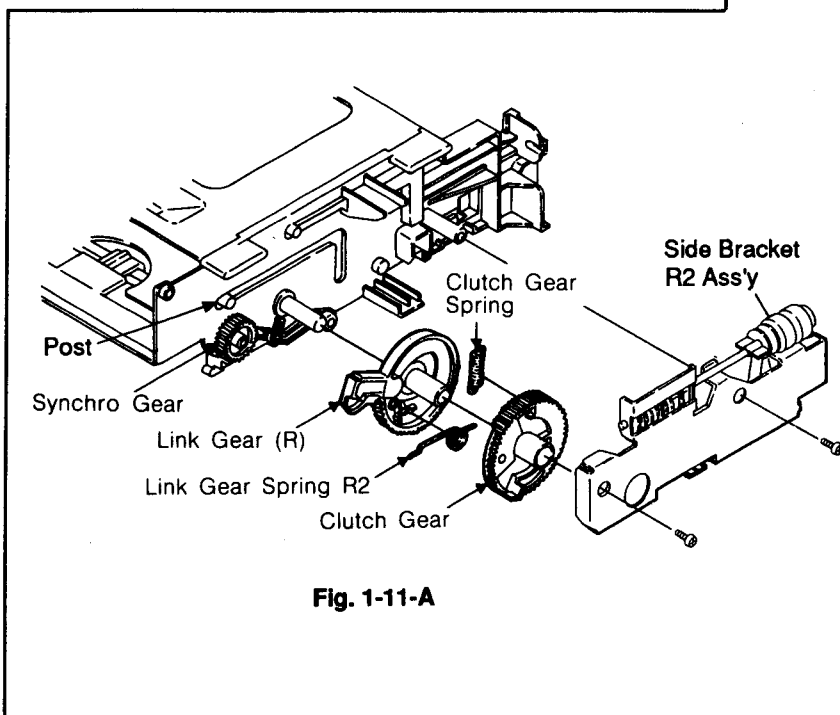
1-11: LINK GEAR (R) /CLUTCH GEAR

(Refer to Fig. 1-11-A, B, C, D)

1. Remove the 2 screws on the Side Bracket R2 Ass'y and remove the Side Bracket.
2. Remove the Link Gear (R) and Clutch Gear.

NOTES ON REASSEMBLY

1. When installing the Link Gear Spring R2 on the Link Gear (R), proceed in order ①, ②, ③, as shown in Fig. 1-11-C.
2. When installing the Link Gear (R), match the position of the Link Gear (R) so that the line over the two ribs on the Synchro Gear goes through the marking hole on the Link Gear (R). (Refer to Fig 1-11-B.)
3. Fit the Clutch Spring as shown in Fig. 1-11-D.
4. Install the Ring Gear (R) so that the cassette holder sub-assembly's post be positioned at point (A). (See Fig. 1-11- D.)

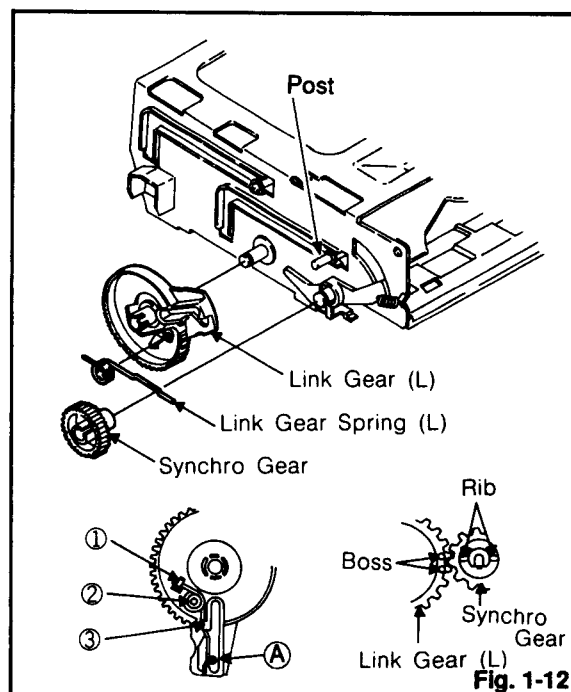


1-12: LINK GEAR (L) (Refer to Fig. 1-12)

1. Remove the Synchro Gear.
2. Remove the Link Gear (L).

NOTES ON REASSEMBLY

1. When installing the Link Gear Spring (L) on the Link Gear (L), proceed in order ①, ②, ③ as shown in Fig. 1-12.
2. When installing the Synchro Gear, match the position of the Synchro Gear so that the line over the two ribs on the Synchro Gear goes between the marking bosses on the Link Gear (L).
3. Install the Ring Gear (R) so that the cassette holder sub-assembly's post be positioned at point (A).



2. MECHANISM ADJUSTMENT

Read the following NOTED items before starting work.

- Place an object which weighs between 350g and 500g on the Cassette Tape to keep it steady when you want to make the tape run without the front loading unit. (Do not place an object which weighs over 500g.)
- When you activate the deck without the front loading unit, place a black sleeve over Start and End Sensor. (Refer to page 4)
Start/End sensor will not function in this condition.
Then push the Cassette In Switch. (Refer to page 4)

2-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- Set the master plane (JG022) and reel disk height adjustment jig (JG024) on mechanism framework, taking care not to scratch the drum, as shown in Fig. 2-1-A.
- Confirm that the reel disk is lower than "A" of the reel disk height adjustment jig (JG024) on the master plane and higher than "B" as shown in Fig. 2-1-B. If it is not, adjust to less than $7.5\text{mm} \pm 0.2\text{mm}$ with the height adjustment washer.
- Perform the same adjustment for the other reel.

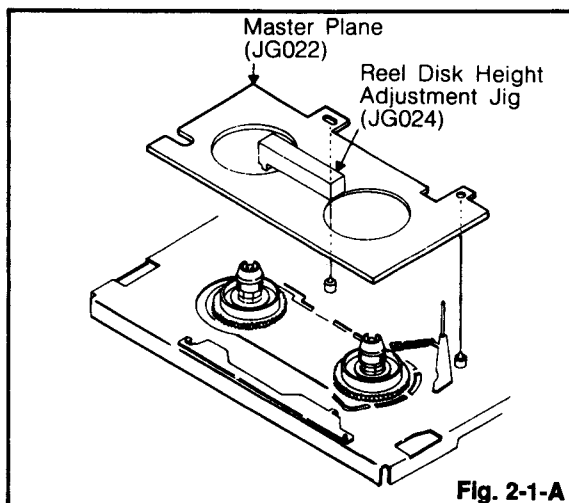


Fig. 2-1-A

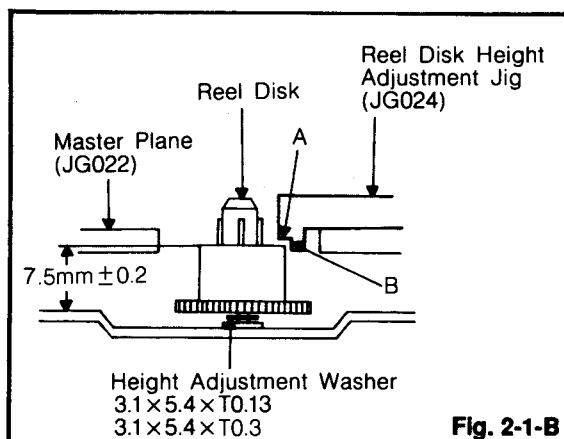


Fig. 2-1-B

2-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

- Set to the PLAY mode after setting the tension post adjustment jig (JG036). (Refer to Fig 2-2-A)
- Move the tension band adjuster to the "A" or the "B" direction to set tension post adjustment jig red line to the round edge of the tension post. (Refer to Fig. 2-2-B)
- Confirm that the video tape is not curling at the flange of P1 post or is not running on flanges.

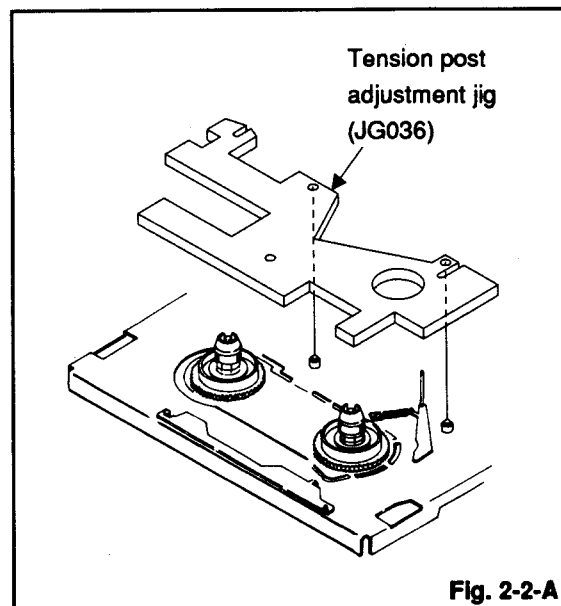


Fig. 2-2-A

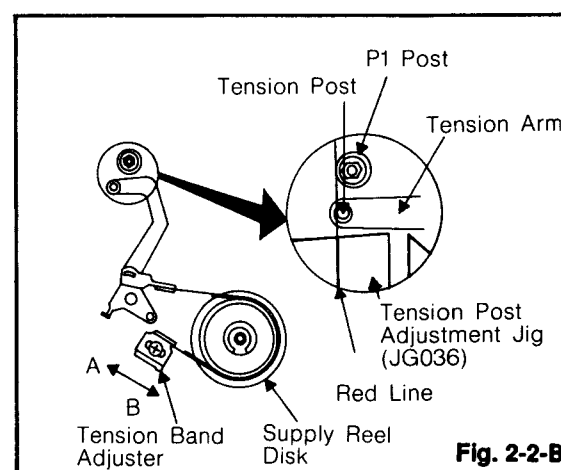
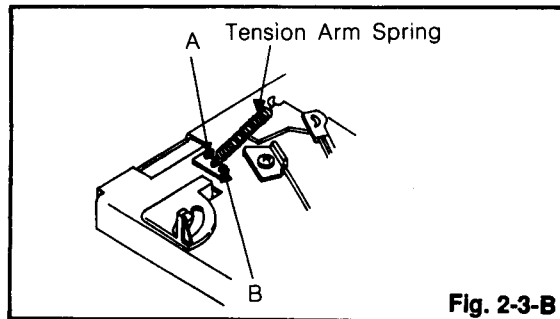
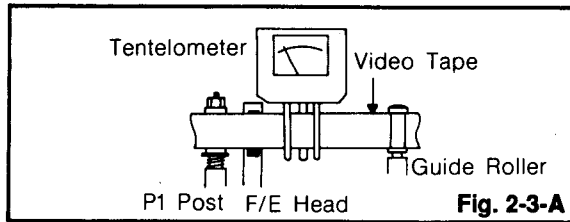


Fig. 2-2-B

2-3: CONFIRMATION AND ADJUSTMENT OF BACK TENSION ON PLAYBACK

- Load a video tape recorded in standard speed mode. Set the unit to the PLAY mode.
 - Install the tentelometer as shown in Fig. 2-3-A. Confirm the value is within $22 \sim 30\text{gr/cm}$ at this time.
- ※ IN CASE OF USING A TORQUE TAPE.
- After adjustment, confirm and adjust the tension post position (Refer to Item 2-2) for the tension arm, install the torque tape (JG100) and set to the PLAY mode.
 - Confirm that the left hand side tension value of the torque tape is $40 \sim 60\text{gr/cm}$ for the standard mode tape.

- Adjust when it does not satisfy the above items. Set the Tension Arm Spring to "A" direction when the torque meter indicates more than 30gr/cm (60gr/cm with torque tape in use). (Refer to Fig. 2-3-B)
Set the Tension Arm Spring to "B" direction when the torque meter indicates less than 22gr/cm (40gr/cm with torque tape in use). (Refer to Fig. 2-3-B)



2-4: CONFIRMATION OF FAST FORWARD TORQUE

- Set torque gauge (JG002G) on take-up reel disk, and place unit in FAST FORWARD mode. (Refer to Fig. 2-4)
- Confirm that torque is more than 800gr/cm.

NOTE

- Measure with the torque gauge held in place by hand.
- Take the reading within 4-5 seconds after the Reel Disk starts turning.

2-5: CONFIRMATION OF REWIND TORQUE

- Set the torque gauge (JG002G) on supply Reel Disk, and place the unit in REWIND mode. (Refer to Fig. 2-4)
- Confirm that torque is more than 800gr/cm.

NOTE

- Measure with the torque gauge held in place by hand.
- Take the reading within 4-5 seconds after the Reel Disk starts turning.

2-6: CONFIRMATION OF PLAYBACK TAPE-UP TORQUE

- Set the torque gauge (JG002F) on the rewind Reel Disk, then check PB mode.
- Make sure that the torque covers the range, 60~150gr/cm.

2-7: CONFIRMATION OF REEL BRAKE TORQUE

(Take-Up Reel Brake) (Refer to Fig. 2-4)

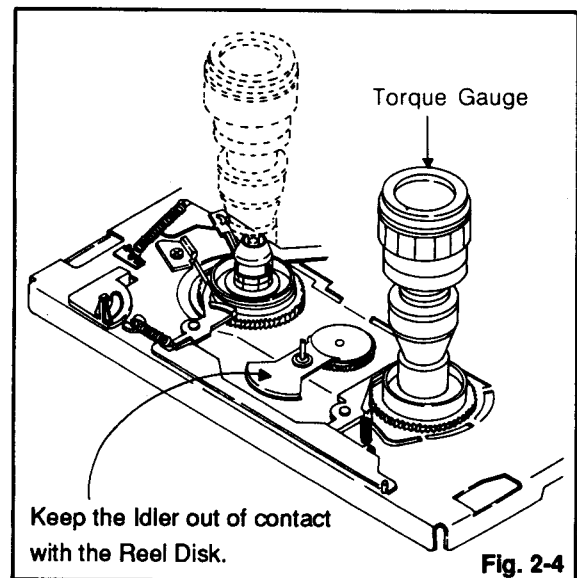
- Set to STOP mode.
- Set the torque gauge (JG002G) to the take-up reel and turn it counterclockwise.
- Confirm that it is more than 200gr/cm at that time.

(Supply Reel Brake) (Refer to Fig. 2-4)

- Set to STOP mode.
- Set the torque gauge (JG002G) to the supply reel and turn it clockwise.
- Confirm that it is more than 200gr/cm at that time.

NOTE

Separate the idler from the reel and confirm the brake torque.



NOTE

If the torque value checked is out of tolerance, replace the appropriate parts as follows.

Check Items	Replace Parts
2-4	Idler Ass'y or Reel Belt
2-5	Idler Ass'y or Reel Belt
2-6	Idler Ass'y or Reel Belt or Clutch Ass'y
2-7	Main Brake T Ass'y or Main Brake S Ass'y

3. TAPE RUNNING CONFIRMATION AND ADJUSTMENT

Tape running is adjusted precisely at the factory. Normally, it is not necessary to make adjustments. It is necessary to confirm and make adjustments when the parts of the tape running mechanism are replaced because of extensive usage or failure.

3-1: GUIDE ROLLER

- Connect the oscilloscope's CH-1 to the PB RF waveform test point and its CH-2 to the RF SWP test point.

2. Play the VHS alignment tape (JG001). Make sure the tracking control is at the manual center position.

Manual center setting:

- 1) Just when the tape starts moving in the Auto Play mode, press the remote controller's tracking button ("^" or "v"). (Be sure that the auto tracking LED has never started blinking. If the LED has started blinking, take out the tape and start all over again.)
- 2) Check that the auto tracking LED keeps off.
3. Using the oscilloscope's CH-2 (RF SWP) signal, trigger the circuitry to observe the PB RF waveform. (See Fig. 3-1-A.)
4. Finally adjust the Guide Roller height with the adjusting screwdriver (JG005) so that the envelope be flat.
5. Activate the tracking button to make sure that the PB RF waveform's amplitude gets smaller. Readjust the height to keep the "A"-to-"B" ratio at 1:1 (A:B = 3:2 or better). (See Fig. 3-1-B.)
6. Call the play mode and adjust the switching position (see the Service Manual for the model in question).

NOTE

After adjustment, confirm and adjust A/C head tilt. (Refer to Item 3-2)

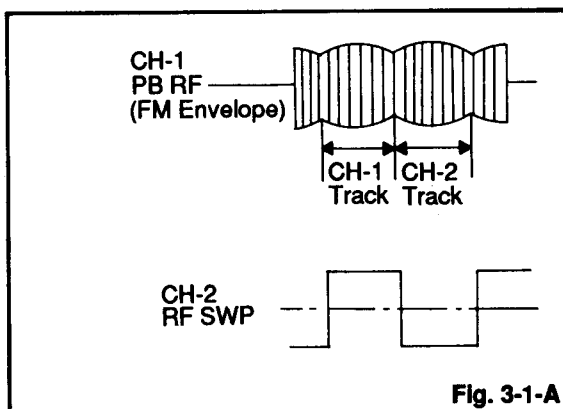


Fig. 3-1-A

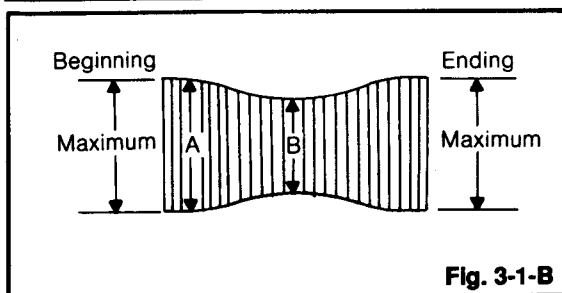


Fig. 3-1-B

3-2: CONFIRMATION AND ADJUSTMENT OF A/C HEAD TILT

When the tape is running abnormally, perform the following adjustments.

1. Insert a new tape and play back.
2. Confirm that there is no crease on the tape between the guide post and guide roller(R) and the tape is running smoothly. (It is absolutely impossible to get satisfactory sound if the tape is distorted between the A/C head and guide post.)

3. If the tape still does not run smoothly, turn the screw ① and adjust the tilt of the A/C head. Do not move the guide post. (Refer to Fig. 3-2)

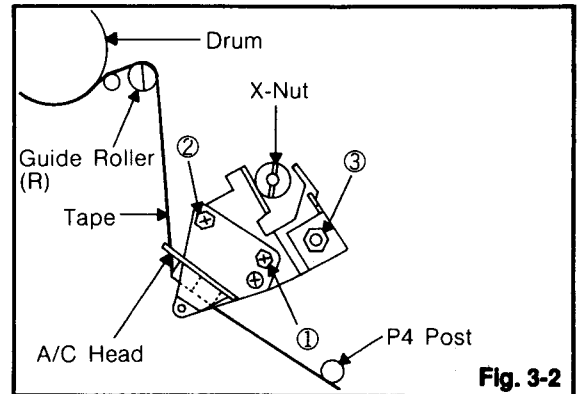


Fig. 3-2

3-3: ADJUSTMENT OF A/C HEAD HEIGHT AND AZIMUTH

1. Play back a VHS alignment tape (JG001) and observe the waveform at the audio output terminal. (Bring the normal sound mode for HiFi models.)
2. Turn the screw ② slowly to change the height of the A/C head. Adjust the height so that the audio output becomes maximum. (Refer to Fig. 3-2)
3. Adjust the nut ③, (Refer to Fig. 3-2) until the height of the A/C head reaches the position against the tape as shown in Fig. 3-3.

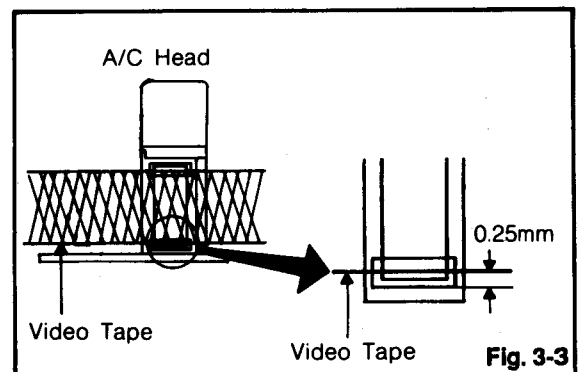


Fig. 3-3

3-4: TAPE RUNNING ADJUSTMENT

1. Make sure the above adjustment items 2-1 thru 3-3 are completed. Readjust as required.
2. Set the tracking control to the manual center position (See Item 3-1).
3. Using the X nut adjusting screwdriver (JG021), adjust the X nut (shown in Fig. 3-2) so that the PB RF waveform's amplitude be maximum.

サービス技術ニュース	
番号	連絡内容
G - -	
G - -	
G - -	

アイワ株式会社
AIWA CO.,LTD.

912162

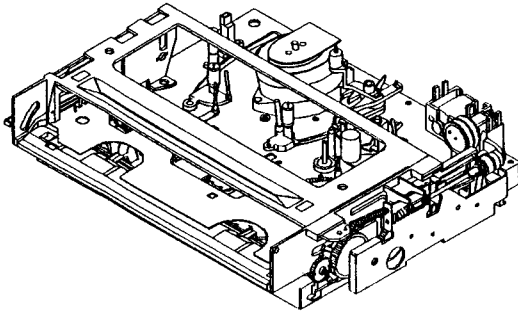
Tokyo Japan

〒110 東京都台東区池之端1-2-11

☎03 (3827) 3111 (代表)

Printed in Singapore

OVD-4A



VIDEO MECHANISM

• TYPE. English

This Service Manual has information about difference between OVD-4A-102C/105C and OVD-4A-100C. If requiring the other information, see ServiceManual of OVD-4A. (S/M Code No. 09-944-052-70K)

BASIC NAME	DERIVATION						
	NO.	NAME					
OVD-4A	A	- 100C	- 105C				
	B	- 102C					
	C						

For different versions of mechanism that may be introduced since the issue of this manual, only the new or modified points will be discussed.

STANDARD MAINTENANCE

1. SERVICE SCHEDULE

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Parts Name \ Time	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head	■	■	■	■	■	
Reel Belt		■		●		Clean the rubber, and parts which the rubber touches.
Front Loading Belt		■		●		
Pinch Roller	■	■	■	■	■●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band Ass'y					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■●	■	■●	■●	Clean the head

● : Replace, ■ : Clean

2. CLEANING

NOTE

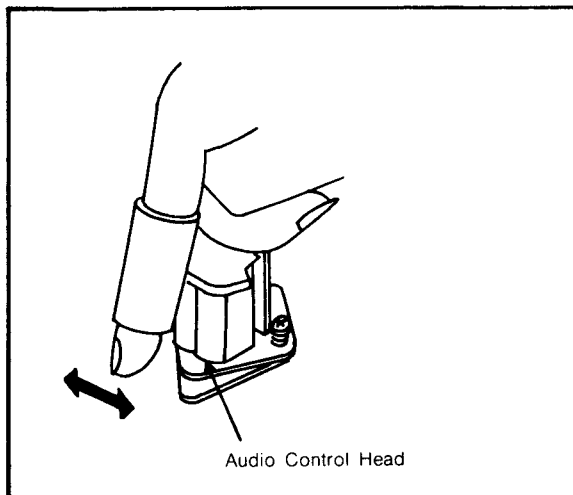
- After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

- Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the Audio Control Head by wiping it horizontally.

Clean the Full Erase Head in the same manner.

(Refer to the figure below)



2. TAPE RUNNING SYSTEM

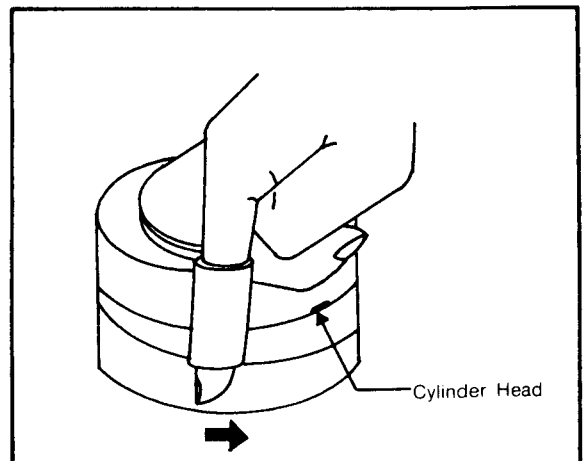
- When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

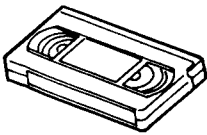
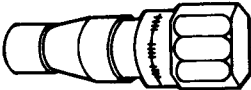
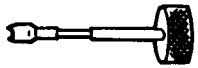
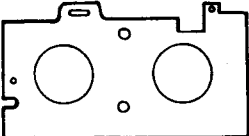
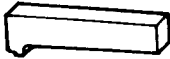
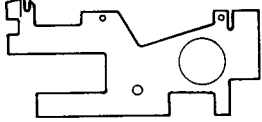
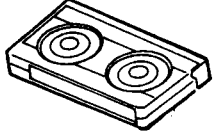
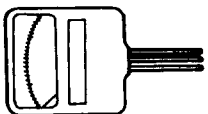
- Put on a glove (thin type) to avoid touching the Upper Drum and Lower Drum with bare hand.
- Put a few drops of alcohol on a head cleaning cloth or the chamois skin, and by slightly placing it against the Head Tip, allow the Upper Drum to turn counter-clockwise.

Note:

- The video head is a very hard material, but since it is very thin, avoid cleaning it vertically.
- Wait for the cleaned part to dry out, before operating the unit.
- Do not reuse stained cloth or chamois skin.



SERVICE JIG AND TOOLS

VHS Alignment Tape JG001 (See table below) 	JG002B Adapter JG002F Dial Torque Gauge (60~600gr/cm) JG002G (100~1200gr/cm) 	JG005 Post Adjustment Screwdriver Parts No. SV-TG0-030-000 	JG021 X-Nut Adjustment Screwdriver 
JG022 Master Plane 	JG024 Reel Disk Height Adjustment Jig 	JG036 Tension Post Adjustment Jig 	JG100 Torque Tape (VHT-103) 
Tentelometer 			

Part No.	Remarks																																														
JG001	Choose the test tapes specified for the mechanism from the table below. (For DERIVATION No., see the cover page of this manual.) Tapes in parentheses can also be used.																																														
	<table><tr><td colspan="2">DERIVATION No.</td><td>A</td><td>B</td><td>C</td><td></td><td></td></tr><tr><td rowspan="2">Adjustment</td><td>Mechanism Type</td><td>PAL SP 2 Head</td><td>PAL SP/LP 2 Head</td><td>NTSC SP/LP/EP 2 Head</td><td></td><td></td></tr><tr><td>FM Envelope</td><td>TTV-P2</td><td>TTV-P2L</td><td>TTV-N2E (TTV-N12)</td><td></td><td></td></tr><tr><td rowspan="3">AC Head</td><td>Tilt</td><td colspan="4">Blank Tape</td><td></td></tr><tr><td>Height</td><td>TTV-P1</td><td>TTV-P1 (TTV-P1L)</td><td>TTV-N1 (TTV-N12) (TTV-N1E)</td><td></td><td></td></tr><tr><td>Azimuth</td><td>TTV-P2</td><td>TTV-P2</td><td>TTV-N2</td><td></td><td></td></tr><tr><td colspan="2">X Value</td><td>TTV-P2</td><td>TTV-P2 TTV-P2L</td><td>TTV-N2 TTV-N2E (TTV-N12)</td><td></td><td></td></tr></table>	DERIVATION No.		A	B	C			Adjustment	Mechanism Type	PAL SP 2 Head	PAL SP/LP 2 Head	NTSC SP/LP/EP 2 Head			FM Envelope	TTV-P2	TTV-P2L	TTV-N2E (TTV-N12)			AC Head	Tilt	Blank Tape					Height	TTV-P1	TTV-P1 (TTV-P1L)	TTV-N1 (TTV-N12) (TTV-N1E)			Azimuth	TTV-P2	TTV-P2	TTV-N2			X Value		TTV-P2	TTV-P2 TTV-P2L	TTV-N2 TTV-N2E (TTV-N12)		
	DERIVATION No.		A	B	C																																										
	Adjustment	Mechanism Type	PAL SP 2 Head	PAL SP/LP 2 Head	NTSC SP/LP/EP 2 Head																																										
		FM Envelope	TTV-P2	TTV-P2L	TTV-N2E (TTV-N12)																																										
	AC Head	Tilt	Blank Tape																																												
		Height	TTV-P1	TTV-P1 (TTV-P1L)	TTV-N1 (TTV-N12) (TTV-N1E)																																										
		Azimuth	TTV-P2	TTV-P2	TTV-N2																																										
	X Value		TTV-P2	TTV-P2 TTV-P2L	TTV-N2 TTV-N2E (TTV-N12)																																										
JG002F	Playback Take Up Torque																																														
JG002G	Fast Forward Torque, Rewind Torque, Brake Torque (Take up Reel/Supply Reel)																																														
JG005	Guide Roller Adjustment																																														
JG021	X-Nut Adjustment																																														
JG022/JG024	Reel Disk Height Adjustment																																														
JG036	Tension Post Adjustment																																														
JG100	Playback Back Tension Torque																																														

DISASSEMBLY PARTS LIST

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カンリ NO.	DESCRIPTION	REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	S6-2WS-A00-150		PLATE, DECK ANGLE	68	S4-ZZ0-6A5-000		CYLINDER ASS'Y A4ZZ06Z<105C>
2	S5-0A6-001-390		TENSION, BAND ASS'Y	68	S4-ZZ0-1A5-000		CYLINDER UNIT ASS'Y<100C>
3	S5-0A4-000-770		TENTION ARM ASS'Y	69	S5-OP0-002-620		WORM, BRAKET 3
4	S5-OP8-001-410		TENTION ARM SPR	70	S5-OP6-003-150		BELT, FRONT LOAD
5	S5-0A2-000-360		S REEL ASS'Y	71	S5-0A4-001-120		ARM, AHC UNIT
6	S5-0A6-001-360		MAIN BRAKE S ASS'Y	72	S5-OP8-002-360		SPR, AHC 1
7	S5-OP8-001-870		MAIN BRAK SPR	73	S5-0A6-001-520		BRAKE, TB 2 ASSY
8	S5-OP6-004-460		ARM, S-S BRAKE 1	74	S5-OP6-004-570		ARM, S-B BRAKE
9	S5-OP8-001-640		SS BRAK SPR	76	S5-OP9-004-300		RING GEAR(L)
10	S5-0A4-001-080		BASE, S INCLINED ASS'Y	77	S5-OP8-001-750		SPR, RING GEAR(L)
11	S5-OP8-001-900		MAIN BRAK SPR 3	78	S5-OP9-005-250		SYNCHRO GEAR
12	S5-0A2-000-350		T REEL ASS'Y	79	S5-OP9-004-510		FLAP LEVER 2
13	S5-0A6-001-350		MAIN BRAKE T ASS'Y	80	S5-OP9-005-370		COVER, SENSOR 2<102C, 105C>
14	S5-0A4-001-090		BASE, T INCLINED ASS'Y	80	S5-OP9-004-400		SENSOR COVER<100C>
15	S5-OP6-004-320		ROLLER, IMPEDANCE	81	S5-0A9-001-280		TOP BRKT ASS'Y<100C>
16	S5-OP0-002-850		CS, RING 2. 6-5. 4-T0. 1	81	S5-0A9-001-420		TOP, BRKT ASS'Y<102C, 105C>
17	S6-850-1H8-040		SCREW, TAP(S)U3-8	82	S5-OP9-004-580		LOCKER
18	S5-96P-580-080		MOTOR, LOAD MXN-13B<102C>	83	S5-OP8-001-540		LOCKER SPR
18	S5-96P-480-010		MOTOR, LOAD MXN-13F<100C, 105C>	84	S5-OP9-005-350		CASS, SIDE L ASS'Y<100C>
19	S5-OP5-000-420		AC HEAD BASE 2	84	S5-0A9-001-380		CASS, SIDE L ASS'Y<102C, 105C>
20	S5-OP8-002-330		SPR, AC HEAD BASE 2	85	S5-OP9-003-540		PACK SPR
21	S5-0A6-001-480		LOAD MOTOR BOX A A'Y	86	S5-OP9-005-360		CASS, SIDE(RA)
22	S5-OP6-003-170		BELT, LOAD MOTOR	87	S5-OP9-004-740		REMOVING 2
23	S5-0A5-000-080		PINCH ROLLER LEVER ASS'Y	88	S5-OP8-001-980		SPR, REMOVING 2
24	S5-OP6-004-590		NUT, ADJUST X2	89	S5-0A9-001-220		CASS, HOLDER SUB ASS'Y
25	S2-BH0-000-060		ELECTRO MAGNET (L1301)	90	S5-OP9-002-670		SYNCHRO SHAFT
26	S5-0A4-000-730		PINCH ROLLER ARM ASS'Y	91	S5-OP9-005-290		TAPE GUIDE PIECE
27	S5-OP8-001-490		PINCH ROLLER ARM SPR	92	S5-OP9-005-320		BRKT, SIDE RIA
28	S5-0A4-001-050		LIMIT, POST ARM ASS'Y	93	S5-OP9-004-160		FRONT LOUD SWITCH LEVER
29	S5-OP8-001-480		LIMIT, POST ARM SPR	94	S5-OP8-001-580		FRONT LOUD SW LEVER SPR
30	S5-OP6-003-050		CAM, 1	95	S5-0A9-001-290		SIDE BRAKE R2 ASS'Y
31	S5-0A6-001-140		WORM, ASS'Y	96	S5-OP9-004-310		RING GEAR(R)
32	S5-0A4-001-020		G-ROLLER ASS'Y	97	S5-OP8-001-530		CLUCH GEAR SPR
33	S5-0A3-000-310		LOUD LEVER 2 ASS'Y	98	S5-OP8-001-810		RING GEAR SPR R2
34	S5-OP6-004-540		LEVER, SUB BRAKE	99	S5-OP9-004-320		CLUCH GEAR
35	S5-0A9-000-830		FRONT LOUD LEVER ASS'Y	100	S5-OP9-004-170		LOCK LEVER
36	S5-0A3-000-300		LOUD ARM ASS'Y(TU)	101	S5-OP8-001-590		LOCK LEVER SPR
37	S5-0A3-000-290		LOUD ARM ASS'Y(SUP)	102	S5-OP9-004-380		WHEEL
38	S5-0A6-001-370		TS BRAKE ASS'Y	103	S5-OP9-004-350		CLUCH LEVER
39	S5-OP8-001-650		TS BRAK SPR	104	S5-OP9-004-340		SLIDE, LEVER
40	S5-0A2-000-430		CLUCH ASS'Y	105	S5-OP8-001-800		SLIDE, LEVER SPR 2
41	S5-0A2-000-380		IDLER JS ASS'Y	106	S5-OP9-005-310		JOINT PULLEY 2
42	S5-OP6-004-100		LEVER, MAIN BRAKE 1	107	S5-0A9-000-890		WORM, ASS'Y
43	S5-OP6-003-100		ACTUATOR, SUB BRAKE	108	S5-OP9-004-500		OPENER A
44	S5-0A6-001-290		CLUCH ACTUATOR JS A'Y	109	S5-OP8-001-720		OPENER SPR A
45	S5-OP6-003-030		TENTION LEVER	110	S4-510-1A6-900		HLDR, CASS ASS'Y
46	S5-OP4-003-260		O-RING	111	S4-480-2A6-400		BRKT, SIDE R ASS'Y
47	S5-OP6-003-810		SLIDE, MAIN BRAKE	112	S5-OP9-005-230		FRONT LOUD EARTH SPR
48	S5-OP8-001-880		MB SLIDE SPR	113	S5-OP8-002-300		LOCKER(R)SPR
49	S5-0A6-001-090		MB LEVER 2 ASS'Y	114	S5-23V-910-160		HEAD, AC HVMZA1169A<102C, 105C>
50	S5-0A6-001-080		TENTION ARM SLIDE ASS'Y	114	S5-33D-910-020		HEAD, AUDIO (H5001)<100C>
51	S5-OP6-004-160		LEVER, LIMITER POST	115	S5-43V-020-050		HEAD, FE (H5002)<102C, 105C>
52	S5-OP6-004-090		LEVER, CLUTCH ACTUATOR	A	S1-071-266-040		UT2+2. 6-6
53	S5-OP3-001-120		SLIDE, LOUDING 2	B	S1-021-304-040		V+3-4
54	S5-OP6-003-040		CAM, 2	C	S1-072-268-040		VT2+2. 6-8
55	S5-0A6-000-990		MAIN BRAK LEVER 3 ASS'Y	D	S1-072-30A-440		TAP(S)V+3-14
56	S5-0A3-000-430		GEAR LOADING S ASS'Y	E	S1-072-30A-640		UT2+3-16
57	S5-0A3-000-440		GEAR LOADING T ASS'Y	F	S1-072-306-040		SCREW, TAP(S) BIND
58	S5-OP8-001-910		LOUD GEAR SPR	G	S1-072-308-040		SCREW, TAP(S) BIND
59	S5-OP8-002-450		SPR, AZIMUTH 2	H	S1-102-308-040		UT2+3-8
60	S1-44J-306-040		SCREW, M3-6	I	S3-ETW-250-000		E, RING 2. 5
61	S1-461-30A-310		SCREW, U+3-13	J	S2-031-54B-3N0		PW, 3. 1-5. 4-0. 13
62	S5-OP5-000-100		ADJ NUT	K	S2-P25-550-4N0		PW, 2. 5-5. 5-0. 4
63	S5-OP8-001-890		FLONT LOUD LEVER SPR	L	S2-P30-600-5N0		PW, 3. 1-6-0. 5
64	S5-OP6-003-190		PULLEY, LOADING MOTOR	M	S2-A32-700-540		WASHER 3. 1-7. 0-T0. 5
65	S5-OP6-003-160		BELT, REEL	N	S2-A40-800-540		WASHER 4. 3-8. 0-T0. 5
66	S5-0A4-000-880		GUIDE, ROLLER ASS'Y	P	S1-5DJ-203-020		SCREW, M2-3
67	S5-10P-980-200		CAPSTAN, UNIT DFX67D4<100C>	Q	S1-45J-306-010		SCREW, M3*6
67	S5-10S-980-240		CAPSTAN, UNIT F20TB2<102C, 105C>	R	S3-CST-350-500		CS, RING 3. 5
68	S4-ZZ0-3A5-000		CYLINDER ASS'Y A4ZZ03Z<102C>	S	S3-ETW-300-600		E, RING 3. 0

REF. NO	PART NO.	カンリ NO.	DESCRIPTION
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T	S1-17B-268-040		SCREW, VT2+2. 6-8
U	87-067-099-010		PW. 2. 6-6-0. 25
V	S1-471-308-040		VIT+3-8
W	S1-071-261-440		VIT+2. 6-14
X	S1-071-264-040		VIT+2. 6-4
a	87-067-167-010		PW. 3. 1-5. 4-0. 5
b	S6-817-CGA-040		SCREW, U+2. 6*10
c	S1-072-205-040		UIT+2-5

REF. NO	PART NO.	カンリ NO.	DESCRIPTION
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2. Play the VHS alignment tape (JG001). Make sure the tracking control is at the manual center position.

Manual center setting:

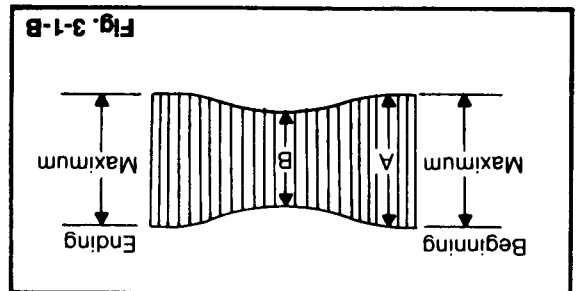
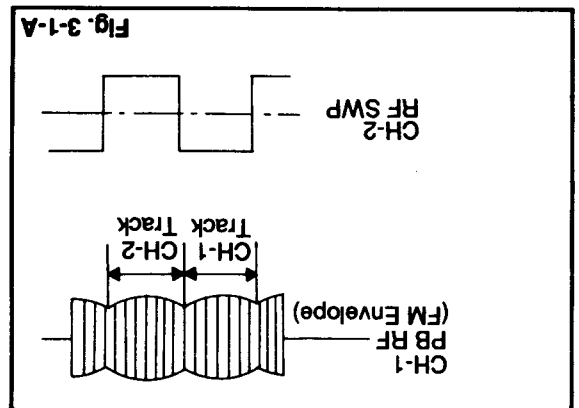
1) Just when the tape starts moving in the Auto Play mode, press the remote controller's tracking button ("Λ" or "∨"). (Be sure that the auto tracking LED has never started blinking. If the LED has started blinking, take out the tape and start all over again.)

2) Check that the auto tracking LED keeps off.
3. Using the oscilloscope's CH-2 (RF SWP) signal, trigger the circuitry to observe the PB RF waveform. (See Fig. 3-1-A.)

4. Finally adjust the Guide Roller height with the adjusting screwdriver (JG005) so that the envelope be flat.
5. Activate the tracking button to make sure that the PB RF waveform's amplitude gets smaller. Readjust the height to keep the "A"-to-"B" ratio at 1:1 (A:B = 3:2 or better). (See Fig. 3-1-B.)

6. Call the play mode and adjust the switching position (see the Service Manual for the model in question).
NOTE

After adjustment, confirm and adjust A/C head tilt. (Refer to item 3-2)

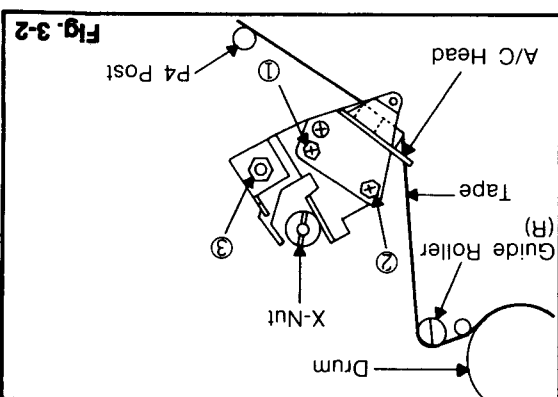


3-2: CONFIRMATION AND ADJUSTMENT OF A/C HEAD TILT

When the tape is running abnormally, perform the following adjustments.

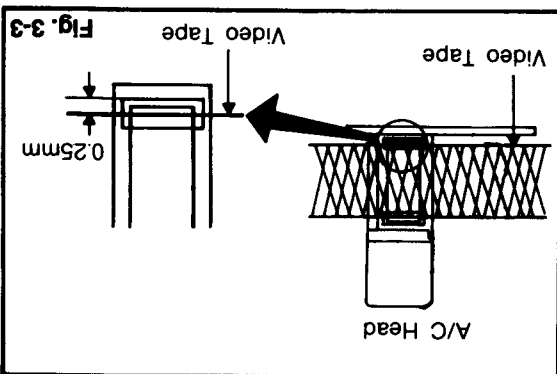
1. Insert a new tape and play back.
2. Confirm that there is no crease on the tape between the guide post and guide roller(R).
3. Confirm that the tape is distorted between the A/C head and guide post.

3. If the tape still does not run smoothly, turn the screw ① and adjust the tilt of the A/C head. Do not move the guide post. (Refer to Fig. 3-2)



3-3: ADJUSTMENT OF A/C HEAD HEIGHT AND AZIMUTH

1. Play back a VHS alignment tape (JG001) and observe the waveform at the audio output terminal. (Bring the normal sound mode for HiFi models.)
2. Turn the screw ② slowly to change the height of the A/C head. Adjust the height so that the audio output becomes maximum. (Refer to Fig. 3-2)
3. Adjust the nut ③, (Refer to Fig. 3-2) until the height of the A/C head reaches the position against the tape as shown in Fig. 3-3.



1. Make sure the above adjustment items 2-1 thru 3-3 are completed. Readjust as required.
2. Set the tracking control to the manual center position (See item 3-1).
3. Using the X nut adjusting screwdriver (JG021), adjust the X nut (shown in Fig. 3-2) so that the PB RF waveform's amplitude be maximum.

サービス技術ニュース	
番号	
連絡内容	
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G-	-

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